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# DIRECTIONALITY IN CHINESE/ENGLISH SIMULTANEOUS INTERPRETING: IMPACT ON PERFORMANCE AND STRATEGY USE

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# DIRECTIONALITY IN CHINESE/ENGLISH SIMULTANEOUS INTERPRETING: IMPACT ON PERFORMANCE AND STRATEGY USE

**by**

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To my parents, my husband, Chwan-ming, and my daughter, Christine

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# DIRECTIONALITY IN CHINESE/ENGLISH SIMULTANEOUS INTERPRETING: IMPACT ON PERFORMANCE AND STRATEGY USE

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This study aimed to explore professional Chinese/English interpreters' experience of simultaneous interpreting in different language directions, focusing specifically on the impact of language direction on performance and strategy use. Ten professional Chinese/English interpreters were asked to interpret two speeches from English into Mandarin Chinese, and two speeches from Mandarin Chinese into English, each followed with a stimulated retrospective interview. Of the ten interpreters, seven reported dominance in Chinese and three reported either being dominant in English or having equal abilities in Chinese and English. The products of their interpreting, their linguistic outputs, were analyzed using a propositional analysis of the semantic content and an error analysis of the linguistic quality. The processes of their simultaneous interpreting were explored through qualitative analysis of their stimulated retrospective interviews. Through a grounded theory approach, a model was constructed showing how interpreters'

experience of simultaneous interpreting in different directions was determined by a myriad of factors, including contextual factors, personal factors, and interpreting norms.

Results of this study indicate that professional interpreters who must regularly interpret simultaneously in both directions may develop strategic approaches to cope with the different demands of A-to-B and B-to-A interpreting. The difference in their performances seems not only to be a result of the asymmetry between their A and B language proficiency, but also a result of their metacognitive awareness of the limits of their language abilities, the strategies available to them, their audience's expectations and other norms they believe apply to their performance, as well as the discourse structures of their working languages.

The present data suggest professional interpreters may again behave differently from student interpreters when it comes to simultaneous interpreting in different directions. This study not only sheds light on the differences in performance and strategy use between interpreters working with different language directions, but also can contribute to the design of more effective interpreting pedagogy.

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# Chapter 1: Introduction

Simultaneous interpreting (SI) is a mode of translation that involves orally translating the message heard in one language immediately and continuously into another language while the message is still being produced. It is a complex cognitive activity that requires the interpreter to listen to what the speaker says and render it immediately into another language, listen to the speaker's next message, store the message in memory before retrieving it again for translation, and monitor his or her own output, all at the same time.

Being highly proficient in at least two languages is a prerequisite for performing the act of simultaneous interpreting. Although interpreters are often assumed to have achieved perfect command of their working languages, second language and psycholinguistic studies have shown that, even for advanced learners of a second language, the comprehension and production processes in the second language (L2) often differ from the first language (L1), lending support to the hypothesis that simultaneous interpreting from L1 to L2 and from L2 to L1 may involve different processes and result in different products.

This distinction is the basis for a debate on directionality in SI, that is, whether interpreters should work from an L2, or a weaker language, into their L1, or a dominant language (referred as *B-to-A*[1] interpreting), or vice versa (referred as *A-to-B* interpreting,

[1] According to the International Association of Conference Interpreters (AIIC), an A language is "the interpreter's native language (or another language strictly equivalent to a native language)," and a B language is "a language other than the interpreter's native language, of which she or he has a perfect command."

or *detour* interpreting) (Pochhacker, 2003). Proponents of B-to-A interpreting assert that interpreters are at a disadvantage cognitively when interpreting from the A language into the B language due to the extra effort required to find corresponding expressions in their B language (e.g., Donovan, 2003; Seleskovitch, 1999). Supporters of A-to-B interpreting, on the other hand, contend that interpreters' better comprehension of their native language may help them produce a more complete and reliable interpretation (e.g., Denissenko, 1989; Williams, 1995).

While earlier debates about directionality in SI were based only on interpreters' personal experience or research findings extrapolated from other fields, increasingly more attention has been paid in recent years to providing evidence for either position through empirical studies of interpreters (Russo and Sandrelli, 2003). A review of this still limited pool of available research seems to support both ends of the directionality debate. For example, interpreters made more language use errors, but less meaning errors when interpreting from A to B (Lee, 2003). In terms of propositions correctly rendered from the source language to the target language, language direction did not produce results that were statistically different, although when interpreting difficult text, slightly more propositions were successfully rendered in the B to A direction (Tommola & Heleva, 1998). Regarding strategy use, interpreters seemed to use more transformation and generalization when interpreting from A to B (Janis, 2002). The characteristics of the language pairs involved in the interpreting also appeared to affect interpreters' experience of interpreting from A to B and from B to A (Al-Salman & Al-Khanji, 2002).

However, one problem with this research is that most studies were conducted with participants who were still studying interpretation, making it difficult to apply the results

to professional interpreters who regularly face the challenge of interpreting in both directions. Moreover, few studies so far have attempted to account for the role of language direction in the overall process of simultaneous interpreting.

With the increasing practice of interpreting into both one's A and B languages in many parts of the world, understanding the differences in simultaneous interpreting from A to B and from B to A is imperative, both for providing a clearer picture of the cognitive processes involved in SI and for developing effective training of future interpreters.

Simultaneous interpreting between Mandarin Chinese and English is a case in point. In Taiwan, a major market for Mandarin Chinese/English conference interpreting, due to a lack of native English speaking interpreters, interpreters who have learned English as a foreign language are required to work into both Chinese and English on a regular basis. Consequently, students training to become interpreters are also required to learn simultaneous interpreting in both directions at school.

Moreover, compared with interpreters dealing with Indo-European languages, Chinese-English interpreters face another problem that may further complicate their interpreting process: the linguistic and cultural distances between these two languages (Dawrant, 1996; Setton, 1993, 1994). Although the issue of whether some language pairs are more difficult to interpret than others remains controversial in SI research, simultaneous interpreting between Chinese and English is among the language combinations often considered problematic because of many structural asymmetries (Dawrant, 1996; Gile, 1997; Setton, 1999).

To further an understanding of the impact of language direction on simultaneous interpreting, this study examined how Chinese/English professional interpreters

experience simultaneous interpreting in different language directions, i.e. from B to A and from A to B. Specifically, I looked at two important aspects of their simultaneous interpreting—performance and strategy use—and how the differences found in these two aspects reflected differences in these interpreters' cognitive and metacognitive processes.

## BACKGROUND TO THE STUDY

### Language Direction and SI Performance

Many experienced interpreters know intuitively that the challenge for A-to-B interpreting lies mainly in production while that for B-to-A interpreting lies mainly in comprehension. Research on second language acquisition and bilingualism has offered ample support for this intuition. For example, in terms of lexical processing, word for word translation from L1 into L2 was found to be slower than from L2 into L1 (de Bot, 2000), a phenomenon known as "translation asymmetry" (Kroll & Steward, 1994). Regarding syntactic processing, producing L2 syntax was believed to be less automatic and often required conscious monitoring (Bialystok, 1994; Ullman, 2001). In fact, this extra demand on attentional resource has been used as a justification for the standard practice in many international organizations for the interpreters to work only into the native language (Schweda-Nicholson, 1992), leading to the claim that simultaneous interpreting into one's L2 not only requires more effort but also results in poorer products (Seleskovitch, 1999). Indeed, interpreters were found to make more serious errors leading to loss of information when interpreting difficult texts from their L1 to L2 (Daro, Lambert & Fabbro, 1996).

However, second language research has also offered evidence for the possible disadvantage of working from L2 to L1. Advanced L2 learners whose perception performance was as good as native speakers under quiet environment were found to be affected to a greater extent than the native speakers when the speech was masked by noise (McAllister, 2000). As the quality of the input speech is not always good during interpreting, and the accent of the speaker or even the interpreter's own output can all constitute "noise" for the incoming speech (Sabatini, 2000/01), it can be argued that an interpreter who listens to the source text in L2 is often facing a greater challenge in correctly comprehending the source text, which, consequently, may affect their production of the target text, even if it is in their L1. The possible gap in one's linguistic and cultural knowledge in L2, even for advanced learners, can also pose a problem for interpreters when listening to their L2. In fact, studies found that, for untrained fluent bilinguals and student interpreters, interpreting from L1 to L2 sometimes led to better performance than interpreting from L2 to L1 (Barik, 1975; Tommola & Heleva, 1998).

When looking at this body of research, however, it should be kept in mind that, unlike in daily communication situations, comprehension and production are often overlapping in simultaneous interpreting, not to mention the complicating factor of translation and memory. In Gile's Effort Model (1995, 1997), simultaneous interpreting is accomplished by the sharing of cognitive resources among four major efforts: listening and analyzing, production, memory, and coordination. In other words, while a comprehension problem will have a negative effect on production, a production problem also has consequences for comprehension. Therefore, when looking at interpreters' performance of different language directions, we should not only consider whether

comprehension or production is more important in the interpreting process, or whether their L2 receptive skills or productive skills are more resilient under stress, but also the interaction of these different variables during interpreting.

In this study, I did not evaluate the overall quality of the interpreters' outputs, but instead focused only on two aspects of their interpreting performance that are likely to be influenced by language direction: (1) semantic accuracy, as measured by propositional analysis, and (2) linguistic accuracy, as measured by an error analysis of their linguistic quality. I looked at these two aspects of interpreters' performance in order to provide evidence for the different cognitive and metacognitive processes involved in simultaneous interpreting in different directions and also to triangulate the data obtained from my analysis of interpreters' strategy use.

**Strategy Use and SI**

Another focus of this study was on the impact of language direction on interpreters' strategy use, an important factor affecting interpreting performance. Professional interpreters are known for skillful use of a variety of strategies. Many strategies, such as anticipation or segmentation, are taught explicitly in interpreter training programs as possible tactics to be used to reduce the cognitive demands imposed by the SI task or to help cope with emergencies as they come up in the process of interpreting (Gile, 1995; Jones, 1998). Adapting a definition provided by Kalina (1992), I define strategy use in this study as *any goal-oriented, potentially conscious employment of tactics designed to overcome the processing problems interpreters encountered during simultaneous interpreting.* This definition includes interpreters' responses to any problems occurring

during the stages of comprehension, translation, or production, such as anticipating, restructuring, or generalizing, and can sometimes be identified from analysis of the interpreting products alone.

Given its importance, it is not surprising to find that discussions about strategy use are abundant in the SI literature. While most discussions on strategies are based on the experience and intuition of professional interpreters and are mainly for pedagogical purposes (Gile, 1995; Kornakov, 2000; Wu, 2001), some recent studies have started to provide empirical evidence associated with interpreters' strategy use (Ivanova, 1999; Kohn & Kalina, 1996; Vik-Tuovinen, 2002) by employing the retrospective method developed in the cognitive psychology tradition.

However, so far only a few studies have examined empirically the strategies interpreters use when interpreting from their A language into their B language and how this change of direction affects their strategy use (Janis, 2002).

In this study, I used stimulated retrospective interviews, which was a combination of the retrospective protocols and interview techniques, to gain access to the interpreter's cognitive processes during interpreting in different directions, specifically their strategy use during comprehension, translation, and production. Kohn and Kalina (1996) suggested that retrospection can serve as an effective tool to bridge the empirical gap between products and the processing dimension of simultaneous interpreting and reveal the interdependence and interaction of interpreters' strategy use. Even though the use of interpreting strategies may have become so automatic for professional interpreters that they have become part of their tacit knowledge, when specific problems occur during the interpreting process, this tacit knowledge can become explicit again and consequently can

be recalled from memory after the interpreting task is over.

Another value of using retrospective interviews is the possibility of eliciting the principles, or *norms*, on which the interpreters' strategy use may be based. As indicated by some studies (Gile, 1999b; Shlesinger, 1999), professional interpreters' strategy use may be governed by their beliefs about what constitute appropriate interpreting products and ways to achieve these products, as much as by their cognitive constrains. The verbal reports obtained from the retrospective interviews were later triangulated with the interpreters' performance data.

## RESEARCH QUESTIONS

The debate on directionality has been going on for almost three decades and has remained one of the most contentious issues in the literature on conference interpretation (Dejean le Feal, 1998). As rightly argued by William (1994, 1995), if L1 and L2 are learned, stored, and used differently, the issue of language direction must be taken into account in our attempt to understand SI processes.

Despite the recent surge of interests in providing more empirical evidence on the differences between interpreting in different directions, so far most studies only focused on student subjects. This study aimed to explore professional Chinese/English interpreters' simultaneous interpreting experience in different language as revealed by their performance and strategy use in interpreting from the A language to the B language and vice versa. The following two main questions were addressed in this study:

1. How does language direction affect Chinese/English interpreters' performances?

2. How does language direction affect Chinese/English interpreters' strategy use?

Given the complex nature of simultaneous interpreting and the limited sample size typical to conference interpreting research, I used both quantitative and qualitative approaches in this study to help answer these questions. Ten professional Chinese/English interpreters were asked to interpret two Chinese and two English speeches presented at different rates of delivery. Each interpreting task was followed by a stimulated retrospection task aimed at revealing these interpreters' cognitive as well as metacognitive processes, especially their strategy use for interpreting each speech. By combining data of these interpreters' outputs and their retrospective interviews, I hope to demonstrate the interaction and interdependence of interpreters' performance and strategy use in interpreting in different directions.

Following this introduction, I review in Chapter 2 the literature on simultaneous interpreting, language direction, and strategy use. I then describe in Chapter 3 the methods designed to answer the research questions raised in this study. Findings from this study are presented in Chapter 4. Finally, in Chapter 5, I discuss the findings and their implications for interpreting training and future research.

# Chapter 2: Literature Review

In this chapter I first describe the phenomenon of simultaneous interpreting (SI) and briefly review research conducted on the factors influencing interpreters' SI performance in general. I then discuss possible effects of language direction on SI performance, as suggested by psycholinguistic studies on L1/L2 processing as well as SI studies on directionality. Finally, I describe studies about interpreters' strategy use and the relationship between language direction and SI strategy use.

## THE PHENOMENON OF SIMULTANEOUS INTERPRETING

### Concurrent listening and speaking

A simultaneous interpreter, while trying to render the preceding message into another language, has to continue to listen to the incoming message. This concurrent comprehension of the source language and production of the target language is perhaps the most amazing characteristic of the SI task. Studies show that the interpreter's speech overlaps with the speaker's speech time significantly (Chernov, 1979; Gerver, 1974, 1975; Lee, 1999b). This demand for concurrent listening and speaking has also made performing SI different from other communicative activities such as speaking or listening alone in at least two ways: First, unlike normal listening activities, the comprehension process of the source message is incremental (Frauenfelder & Schriefers, 1997). Second, the interpreter needs to give selective attention to both speaking and listening tasks in order to do the job well.

However, despite the heavy demand on working memory imposed by the task of

simultaneous interpreting, research has shown that interpreters do not necessarily have a larger working memory than non-interpreters but instead have learned to use their working memory more efficiently (Liu, 2001). Neither is it that interpreters divide their attention during simultaneous interpreting. Rather, they selectively attend to important information (Cowan, 2000).

**Ear-voice-span (EVS)**

Another noticeable characteristic of SI is the lag, also known as ear-voice-span (EVS), between the time the speaker's messages are heard and the time the interpreter actually produces the translation of the messages. EVS provides good evidence for the interpreter' incremental comprehension of messages (Frauenfelder & Schriefers, 1997) as the interpreter often has to start uttering a translation of a message before the source message is completed. Studies calculating the average length of EVS have reported the range to be from 2 to 10 seconds (for a review, see Lee, 2002).

The length of EVS has a great impact on the interpreter's performance. A short EVS can result in less smooth production while a long EVS can result in loss of information. Consequently, interpreters continuously adjust their EVS during the SI process to achieve the best effects (Gile, 1995).

**Models for the SI process**

There are a number of information processing models that have been proposed to account for the SI process (for a review see Moser-Mercer 1997). One of most cited models is the Effort Model proposed by Gile (1995, 1997). The Effort Model describes

the process of SI as a combination of four concurrent efforts—SI = Listening and Analyzing (L) + Production (P) + Memory (M) + Coordination (C). When the total processing requirements for these efforts (or any individual process requirement) exceed the interpreter's available cognitive resources, errors or omission of speech segment during or following the "cognitive breakdown" is likely to occur, even if that segment *per se* is not problematic.

## FACTORS AFFECTING SI PERFORMANCE

A wide variety of factors have been identified to affect SI performance (for a review, see Liu, 2001; Setton, 1999). Many of these factors are concerned with the characteristics of the source texts. Studies investigating the temporal features of simultaneous interpreting have shown, for example, that an interpreter's performance is very sensitive to the delivery rate of speech input. As the rate of speech input increases, the portion of speech accurately interpreted decreases (Barik, 1973, 1975; Gerver, 1969, 1975; Lee, 1999a). The optimal rate for interpreting non-recited texts has been suggested at about 100-120 wpm (words-per-minute), with 150-200 wpm as an upper limit (Seleskovitch, 1965, cited in Gerver, 1976). For recited texts that lack the features of hesitation and redundancy typically characterizing normal oral speech, the maximum rate is suggested at 100 wpm (Lederer, 1981, as cited in Setton, 1999).

The "writtenness" of the source speech, which may involve features such as language complexity and information density, has also been found to affect SI performance. Speeches with more difficult syntactic structures and words of lower frequency have been found to pose more problems for interpreters (Daro et al., 1996;

Tommola & Heleva, 1998). So were speeches with less redundancy (Chernov, 1994). In addition, noise or a speaker with an unfamiliar accent can also be detrimental to SI performance (Sabatini, 2000/01).

Factors involving the characteristics of individual interpreters have received less attention in interpreting research. Most discussions has focused only on the background knowledge of the interpreters as an important factor affecting their performance on different topics, as speeches with less familiar topics are usually harder to interpret (Chernov, 1994). Although language proficiency of the interpreters by all means affects their performance, it is an assumed and often neglected factor. Given the prominence of linguistic proficiency in the SI process and the fact that there is almost always a lag between one's proficiency in L1 and L2, it is safe to expect that language direction is one of those variables that influence interpreters' performance and different uses of strategies.

In the following section, I review some research related to the language direction issue in the SI task.

## DIRECTIONALITY IN SI

The issue of directionality, or whether an interpreter should work into his or her dominant or non-dominant language, has remained one of the most controversial issues in interpreting studies (Dejean le Feal, 1998). The debate on directionality in SI is often traced back to the different ideological positions taken by some prominent interpreting researchers and practitioners in the "Paris School" and those in the "Soviet School" (Minns, 2002; Pochhacker, 2003), whereas the former insisted only interpreting into the A language could provide interpreting of the highest quality and the later emphasized the

advantage interpreters enjoyed as a result of superior understanding of their native languages. Perhaps because the western tradition has long favored SI into one's A language (Pochhacker, 2003), most research on SI over the past decades has focused only on B-to-A interpreting, resulting in little empirical evidence to settle the debate on directionality.

Likewise, most information processing models proposed over the past three decades to account for the SI process also do not take interpreting direction into consideration (for a review, see Moser-Mercer, 1997). One of the few exceptions is Gile's (1997) Effort Model, which briefly discussed the effects of language direction on the four concurrent processes in SI—Listening and Analyzing, Production, Memory, and Coordination—on the ground that some languages may pose fewer or more processing-related problems in comprehension or production. Recently, studies using neurolinguistic techniques have revealed that simultaneous interpreting into L1 and simultaneous interpreting into L2 activate different brain areas (Tommola, Laine, Sunnari & Rinne, 2000/01), providing further argument for accounting for the possible different mechanisms involved in simultaneous interpreting of different directions. In the following, I present the arguments and empirical studies on the issue of directionality in SI research.

**Arguments for Interpreting from B to A Language**

The conventional practice in many international organizations has long been for simultaneous interpreters to interpret only into their A language, which is usually the interpreters' native or dominant language. Most arguments against simultaneous interpreting into L2, or a non-dominant language, center on the extra cognitive burden

placed on the interpreters and the loss of quality it entails (Schweda-Nicholson,1992; Dejean le Feal, 1998; Seleskovitch, 1999). Although interpreters are often assumed to have perfect command of both their working languages, the adverse conditions under which they have to operate has given rise to the commonly held opinion that, because one's L2 production is more likely to suffer, or "backslide" in Selinker's term (1972), under stress (Dornic, 1978; Dewaele, 2002), one should work into the language that is more resilient to stress, namely, one's L1 or dominant language.

Drawing on several linguistic theories, Schweda-Nicholson (1992) provided two justifications for the standard practice of interpreting only into the A language. First, the interpreters need to pay more attention to syntactic structure when speaking their L2; and second, they also need to put more attention to prosodic features of their production in L2.

This greater need for monitoring one's L2 output, even for L2 learners who are highly proficient as simultaneous interpreters, was demonstrated in Moser-Mercer, Frauenfelder, Casado and Kunzli's (2000) study, in which both professional and novice interpreters were found to perform worse when shadowing their non-dominant language. In delayed auditory feedback (DEF) condition, DEF effects were significantly less for professionals only when they used their dominant language.

In addition, in her reflection on the teaching of conference interpretation over the past decades, Seleskovitch (1999) asserted, "When [the interpreters] worked both ways, it is easy to note not only that the 'B' language is poorer but that it is subservient to the 'A' source language and that the efforts made to find corresponding expressions in B distracts the mind from constructing sense"(p. 62), suggesting that problems of syntactic interference and lexical gaps are also more likely to occur when interpreting into one's L2.

Apart from greater likelihood of lexical gaps in one's L2, the retrieval speed of a lexical "equivalent" that does exist also points to the possible disadvantage of interpreting into the B language. According to the Revised Hierarchical Model proposed by Kroll and Steward (1994), L2 learners first rely on their L1 to process L2 meaning and only later become able to have direct conceptual processing via L2 as their L2 proficiency improves. As a result, the lexical link between the two languages is stronger from L2 to L1 than from L1 to L2, and the conceptual link between concepts and the two languages is also stronger for L1 than for L2. The model thus predicts that translation from L1 to L2 will be slower than translation from L2 to L1, creating a translation asymmetry.

This asymmetry is demonstrated by studies measuring the reaction time for translating into L1 vs. into L2. For example, in de Bot's (2000) study, participants of three levels of proficiency showed a clear effect of direction of translation, as well as a significant effect of level of proficiency. In other words, producing words in L2 took a longer time, but the asymmetry decreased with increasing level of proficiency.

In Christoffels' (2004) study, translation direction in the word translation task did not have any effect on professional interpreters; however, an effect of language dominance was detected in the picture naming task, as picture naming in the L2 was still slower than in the L1 for professional interpreters.

It should be noted that these studies were limited to word translation, which is very different from SI, during which an interpreter can use different strategies to compensate for the disadvantages of producing L2. Therefore, it is difficult to apply these results directly to real-life conference interpreting.

**Arguments for Interpreting from A to B Language**

Challenging the assumption that simultaneous interpreting from L2 to L1 results in better quality work, Denissenko (1989) argued that mother tongue-to-foreign language mode of interpreting was actually a more optimal approach, as the interpreter would have an easier time in comprehending the source language, which he considered the most crucial stage in the interpreting process, and "[t]he losses at input cannot be repaired" (p.157). He further claimed that, the resourcefulness interpreters enjoy in interpreting into the mother tongue may turn out to work against them because "with a large variety of options, decision-making and delivery control take more time in the rigid split-second attention distribution cycle" (p. 157).

William (1994, 1995) drew on results in second language research to highlight the disadvantages interpreters need to face when interpreting from their L2 into their L1, including limited memory in L2 and the possible deterioration of L2 perception and comprehension skills under stress and noise. She suggested that "interpreting from L2 to L1 can result in more superfluous formulation and self-corrections" and "although there appear to be fewer syntactic errors when interpreting into L1, there may well be more semantic errors in comparison to the source text" (p. 21).

Recent studies in psycholinguistics seem to corroborate William's argument. L2 learners were found to use L1 listening strategies when listening to their L2 (Cutler, 2000/01) and their comprehension performance was influenced by the noise level to a larger degree than that of native speakers (McAllister, 2000). McAllister (2000) conducted an experiment to assess the perceptual performance of L2 user by comparing the perceptual performance of proficient L2 users of Swedish and native speakers of

Swedish. The results of the study showed that, while L2 users demonstrated perceptual performance equal to that of the native speakers in a quiet environment, when the speech was masked by noise, L2 users' ability to decode the speech was affected negatively to a larger extent than that of the native speakers. Noise has also been found to have a detrimental effect on interpreters' performance (1974), which explains Pinhas' (1972, as cited in Ivanova, 1999) suggestions that interpretation should be from one's mother tongue when it must be performed under noisy conditions.

**Empirical Studies on Directionality in SI**

Empirical evidence on the issue of directionality from earlier studies often came as a byproduct of research focusing on some other issues of interests. In Daro et al.'s (1996) study on interpreters' monitoring of attention, 16 French/English interpreters with either French or English as L1 were asked to interpret one easy and one difficult text in different directions. The results showed that, while in terms of the total number of mistakes, there was no difference between French/ English interpreting from L1 to L2 or from L2 to L1, when interpreting difficult texts from L1 to L2, interpreters committed more errors that led to loss of information. In addition, when focusing attention on the input, interpreting difficult texts from L1 into L2 also resulted in more errors that affected the style of the interpreters' output, including false starts, pauses/long hesitations, corrections, additions, slips of the tongue, and morphosyntactic mistakes. It should be noted that the texts used in this study were isolated "microtexts" consisting of only five sentences each, which makes extrapolating its findings to real-life conference interpreting of coherent, extended texts difficult (Setton, 1999).

Tammola and Heleva (1998) examined the effects of both language direction and text complexity on propositional accuracy in a study on 12 Finnish/English student interpreters' performance. They found that linguistic complexity of the source text produced a significant effect on students' performance. When texts were linguistically simple, students performed equally well in both directions in terms of the number of propositions accurately rendered, but when texts were linguistically complex, students performed slightly better in the L1 to L2 direction, although the difference was not statistically significant in their small data set. The results seemed to replicate the performance data from non-trained bilinguals in Barik's (1975) study, who also performed better in the L1 to L2 direction.

Tommola and Laakso (1997) compared the performance of eight Finnish/English interpreting students (all Finnish L1) in interpreting speeches in different directions and at different speech rates by manipulating the pausal segmentation of the speech. Although the student interpreters' propositional accuracy was significantly better when the speech was segmented with pauses, no significant effect of language direction or interaction of segmentation and language direction was observed.

Lee (2003) compared the error frequency in nine first-year Korean/English student interpreters' interpreting in different directions and found they made significantly more language use and presentation errors, but less meaning errors, in the A into B direction.

Some studies pertinent to the issue of directionality involve strategies interpreters use to cope with the challenge of interpreting for different language combination. I review these studies later in the section on strategy use in SI.

It should be noted that so far most of the studies on directionality have been

conducted on student interpreters. As many studies on expertise in SI has demonstrated that there are both quantitative and qualitative differences in professional and student interpreters' interpreting performance (for a review, see Liu, 2001), it may not be safe to hypothesize professional interpreters' performance in different directions based on results from student interpreters (Setton, 1999). Although there is little experimental research on professional interpreters' experience of interpreting in different directions, a few questionnaire surveys revealed that professional interpreters may again behave differently from student interpreters regarding interpreting in different directions.

In a survey of 53 students and 40 professional conference interpreters with mostly European language combinations, Bartlomiejczyk (2004) found that while student interpreters were mixed in their opinions about their performances in different directions, the majority of professional interpreters felt they performed better when interpreting into their mother tongue. The author suggested that the discrepancy may be the result of professional interpreters' more realistic opinions of their mastery of the B language.

In a survey (Donovan, 2002 as cited in Donovan, 2003) of professional conference interpreters who worked regularly into their B language, most respondents felt it more tiring and stressful working into B and also were less satisfied with the quality of their interpreting into B.

Other surveys, however, seemed to point in a different direction. Al-Salman and Al-khanji (2002) used both questionnaires and the analysis of real conference recording of professional Arabic/English interpreters and found that interpreters whose native language was Arabic preferred and also worked more efficiently when interpreting from Arabic into English. To explain Arabic-English interpreters' preference for interpreting

into English, the author claimed that Arabic was a language easier to comprehend but harder to produce because of the differences between colloquial, standard, and classic Arabic, suggesting language combination as an important variable in interpreting in language directions.

In addition, in Szabari's (2001, as cited in Donovan, 2002) survey in Hungary, some interpreters also indicated preferences for working into B, a result Donovan (2003) attributed to the more rewarding feelings experienced by interpreters who interpreted from a less widely used language to a more widely used one, when they were aware that their listeners depended completely on their interpretation. This explanation seems to suggest that the working context of the interpreters and their resulting subjective feeling toward their work should also be taken into consideration in any discussion of directionality in simultaneous interpreting.

In sum, the research findings described above, albeit still quite limited, have generally suggested interpreters face interesting challenges when dealing with their B, or their weaker, language. In A-to-B interpreting, interpreters seemed to make more meaning errors as a result of miscomprehending B. In B-to-A interpreting, interpreters seemed to make more language and style errors as a result of difficulty in producing B. However, as these studies focused mostly only on student interpreters, many aspects that are relevant to professional interpreters interpreting in different directions are still left unexplored. In the following section, I discuss the possible role of language direction in an important aspect of professional interpreters' behaviors--strategy use in simultaneous interpreting.

## STRATEGY AND SIMULTANEOUS INTERPRETING

### Strategy Use in Simultaneous Interpreting

As mentioned in the first chapter, there have been many discussions of effective strategies in the SI literature (e.g., Al-Salman & Al-Khanji, 2002; Gile, 1995; Jones, 1998; Kornakov, 2000; Wu, 2001). These strategies are usually designed to address the time constraints and cognitive overload problems interpreters encounter during the comprehension of the source texts, production of the target texts, or other memory and monitoring processes, and hence are often divided into comprehension strategies, planning or production strategies, as well as global strategies that influence the overall interpreting performance such as monitoring of the comprehension and production processes (Riccardi, 2002; Gile, 1995; Kohn and Kalina, 1996). Most studies on SI strategies have only listed the strategies interpreters use to overcome different constraints imposed by the interpreting task. Among the most frequently mentioned strategies are anticipating, maintaining comfortable ear-voice-span, reformulating, chunking, simplifying, generalizing, summarizing, paraphrasing, and omission.

In addition to describing interpreter's strategy use, some studies have tried to tackle the mechanism behind interpreters' strategy use, linking individual strategies to the overall cognitive processes involved in the SI task (Kohn and Kalina, 1996; Ivanova, 1999, 2000; Vik-Tuovinen, 2002). Kalina (1992) defined a strategy as "goal-oriented, so that the goal determines the amount and thoroughness of processing. It may be consciously used but may also have become automatic in so far as the processor will not have to make any cognitive decision." (p. 253) By constructing a discourse-based mental

modeling of simultaneous interpreting, she described SI strategies as processing strategies developed in response to the constraints imposed by the interpreting task, such as lack of semantic autonomy on the part of the interpreter. Interpreters' strategy use, therefore, reflect their cognitive processing efforts to achieve their mediation goals.

Using retrospection as a tool to capture the interdependence and interaction of various SI strategies, Kohn and Kalina (1996) confronted interpreters with their own interpreting output immediately after the interpreting task and were not only able to gain rich information about the interpreters' strategy use, but to overcome an inherent problem in many studies on SI strategies that focused only on the interpreters' linguistic output (e.g., Al-Khanji, El-Shiyab & Hussein, 2000), that is, the difficulty of determining, for example, whether an omission of a source text message is a consequence of a comprehension problem, a production problem, or a strategic choice.

Retrospection was also used by Vik-Tuovinen (2002) to gain information about her participants' actual strategies, preferred strategies, and their knowledge of the languages concerned. Using both the transcript of the source text and the tape recording of the source text and the interpreting as stimuli, she asked 21 interpreters at three different levels of proficiency as interpreters to comment on their own interpretation. By using the retrospective protocol as a main source of data, along with questionnaires and the interpreters' written comments, she was able to gain a more comprehensive picture of the strategies and techniques used in the cognitive processes involved in simultaneous interpreting.

Ivanova's (1999, 2000) also employed retrospection as one of a number of different methods to elicit data about the discourse processing of expert and novice interpreters

during SI. Unlike the previous two studies employing retrospection, which gave interpreters both the script of the source speech and the recordings of both the source speech and the interpreting, Ivanova used only the script of the source text and the notes she had taken during the interpreting as stimuli. In her analysis of the retrospection protocol, she divided her data into three categories: problem, monitoring observations, and strategies, and found that, compared to student interpreters, professional interpreters often used a variety of strategies for different types of problems.

In this study, I used stimulated retrospective interviews, a technique that combined the participants' retrospection processes with additional interview questions asked by the researcher, to gain assess to interpreters' cognitive as well as metacognitive activities during their interpreting, specifically for but not limited to their strategy use, as it has been shown that retrospection can also provide other useful information about the interpreting process (Ivanova, 1999, 2000).

**Strategy Use and Language Direction**

Most research on strategy use in SI described above only dealt with B-to-A interpreting. However, it should be noted that different strategies are often designed to overcome different problems. For example, strategies such as summarization are often used to overcome time pressure. Paraphrasing and simplification, on the other hand, are more often used to overcome linguistic difficulty.

Following Flavell's (1987) definition of metacognition, Alexender, Schallert, and Hare (1991) categorized a person's strategy knowledge as one of the variables in his/her metacognition, along with three other variables, self-knowledge, task knowledge, and

plans and goals. The four variables interact with each other as a person may change his/her strategy use according to changes in the other variables. Interpreters' strategy use should be of no exception. Although all the strategies described in the SI literature may be used both when interpreting into one's A language and into one's B language, it is reasonable to expect to find them being used to a different degree according to factors such as language direction, language pairs, the interpreter' level of language proficiency, or text difficulty.

For example, in a qualitative analysis of a small corpus of Finnish/Russian student interpreters' end-of-course exams (Janis, 2002), student interpreters were observed to behave differently in interpreting in different directions. When interpreting from B to A, the student interpreters seemed to have more resources for processing output, as they made more transformation in their interpreting based on the collocation or discourse pattern in the target language. When interpreting from A to B, on the other hand, they tended to use more compression and generalization.

Moreover, discussions of strategy use or interpreting directions eventually have to deal with the issue of language combination (e.g., Bartlomiejczyk, 2004; Christoffels, 2004, Russo and Sandrelli, 2003), which includes not only the characteristics of the pair of languages involved in interpreting but also the question of which one of the language serves as the source language and which as the target language.

The possibility of interpreters using different strategies according to language combinations has been confirmed in a number of SI studies focusing on specific language pairs with apparent syntactic asymmetry, such as German to Italian (Riccardi, 1995) and Chinese to English (Dawrant, 1996).

Chinese and English are recognized as a language combination that differs linguistically as well as culturally in many ways (for a review, see Setton, 1993, 1999). These differences may result in different problems and consequently call for different strategies than other language combinations. For example, Dawrant (1996) found that in simultaneous interpreting from Chinese to English, interpreters relied heavily on certain strategies (waiting, linearity/segmentation, anticipation) to overcome the problems caused by word-order differences between the two languages.

Drawing from Hall's (1976) theory of contexting, Wu (2001) also proposed that, in simultaneous interpreting from Mandarin Chinese to English, the interpreters' summarizing skills are vital because "when interpreting from a hi-context and implicit source language like Mandarin into a low-context and explicit target language like English, more words and longer delivery times are required" (p.84). Wu also proposed a number of other strategies aimed at helping interpreting students with Chinese as an A language and English as a B language interpret more successfully into English. Given that interpreting students may carry the strategies they have learned explicitly at school to real-life conference situations once they become professional interpreters, it is possible that these guidelines for strategy use in different translation directions can continue to be internalized and reproduced as "norms" in the profession as described by Shlesinger (1989). I discuss the concept of *norms* in the following section.

**Strategy Use and Norms**

Compared to the cognitive, pycho- or neuro-linguistics factors in SI, the socio-cultural, communicative, and ideological contexts of simultaneous interpreters' actual

behaviors have received less attention in SI research (Diriker, 2004). One of the socio-cultural concepts that may be of great implications for research on interpreting strategies is the concept of *norms*, or "the social reality of correctness notions" (Bartsch, 1987, p. xii).

The existence of *norms* has been studied extensively in translation studies. Based on definition developed by Bartsch (1987), Schaffner (1999) defined *norms* in translation studies as knowledge of what counts as correct and appropriate behaviors that is developed through socialization and shared by members of a given community. Chesterman (1993, 1997) divided translation norms into "expectancy norms", i.e. what a translation should look like in order to be considered correct and appropriate, and "professional norms", i.e. the acceptable methods and strategies to produce a translation. As process is determined by the product, professional norms were subordinate to the expectancy norms. The goal of translation strategies, therefore, is to "conform to the relevant professional and expectancy norms." (1993, p.14)

Applying the concept from translation studies to interpreting studies, Pochhacker (2003) suggested the "expectancy norms" may be "as powerful as cognitive constraints in shaping the interpreter's strategic response." (p.132) In his discussion of interpreting strategies, Gile (1999) also argued that, even though many of the simultaneous strategies are intended to address cognitive constraints, interpreting strategies are just as norm-based as translation strategies. Of the five rules he proposed governing the selection of interpreting strategies: 1) maximizing information recovery; 2) minimizing recovery interference; 3) maximizing the communication impact of the speech; 4) the law of least

effort; 5) self-protection, he suggested that Rules 1 and 3 can be considered as "target-norms," and Rule 2 as an "optimization norm" (Gile, 1995, 1999).

Pointing out the possibility that interpreter-subjects' performance can be norm-driven, Shlesinger (1999) emphasized the importance for studies on cognitive processing involved in simultaneous interpreting to distinguish between the interpreters' cognitive constraints and their norm-driven strategy use. She categorized interpreting norms as those involved an *obligation* or a *prohibition* and those that involved a *release* from an obligation or prohibition:

> In the case of interpreting, the *obligation/prohibition* category would include, for example, sanctions on a very uneven delivery marked by prolonged silences, even if the output *per se* is complete; the *non-obligation/non-prohibition* category would include the license to omit "less important" components of the source text. The norms in this category center on fluent output and smooth delivery. The implicit acceptance of deletions and generalizations based on macropropositions seems to have guided my subjects' spontaneous change of strategy as they settle into the texts I had prepared for them. (p.73)

In other words, strategies driven by norms not only can help interpreters deal with cognitive constraints but also can alter the interpreter's cognitive processes and ultimately affect the output.

### *Quality Assessment and Norms*

Closely related to the concept of norm is the issue of quality in simultaneous interpreting, or the "expectancy norms" in Chesterman's (1993, 1997) framework.

Summarizing professional standards for simultaneous interpreting, Dejean Le Feal (1990) stated:

> What our listeners receive through their earphones should produce the same effect on them as the original speech does on the speaker's audience. It should have the same cognitive content and be presented with equal clarity and precision in the same type of language. Its language and oratory quality should be at least on the same level as that of the original speech, if not better, given that we are professional communicators while many speakers are not, and sometimes even have to express themselves in languages other than their own. (p.155)

This emphasis on the interpreted texts' effects on the listeners and the possibility of even improving the quality of the original texts for the sake of communication can be considered as possible candidates for expectancy norms for conference interpreting.

More possibility of expectancy norms can be found in studies on professional interpreters' as well as conference audience's beliefs on what constitutes good interpreting. For example, in an AIIC-commissioned survey of over 200 conference interpreting listeners and speakers at 84 different meetings around the world (Moser, 1995, 1996), there was a marked preference for faithfulness to meaning over a literal reproduction of what was being said. In addition, there was a clear preference for concentration on essentials over completeness of rendition, especially in less technical conferences. It was also indicated that experienced conference goers regarded sentence completion as a very important feature of interpreting quality, along with grammatical correctness.

In a survey of 286 interpreters across five continents (Chiaro & Nocella, 2004), among the nine linguistic criteria proposed to affect interpreting quality, interpreters perceived consistency with the original, completeness of information and logical cohesion as the three most important factors, followed by fluency of delivery, correct terminology, and correct grammatical usage. Appropriate style, pleasant voice, and native accent were regarded as the least important criteria.

Kurz (2001) compared conference interpreters' quality-criteria assessment (Buhler, 1986) with the assessment results she obtained from conference participants over a number of surveys over the years and found interpreters usually placed higher demands on their own performance than conference goers. However, their ranking of the top three most important criteria parallel with each other: (1) sense consistency with original message, (2) logical cohesion of utterance, and (3) correct terminological usage.

As professional norms are often determined by the expectancy norms (Chesterman, 1997), it is interesting to understand, in general, how interpreters' and users' opinions of quality criteria as reflected in these studies are manifested in interpreters' strategy use, and, in particular, if interpreters' strategy use in different language directions are governed by different norm expectancy or professional norms.

## SUMMARY

The issue of directionality in simultaneous interpreting has long been controversial, yet interpreting in both A-B and B-A directions has increasingly become a common practice in many parts of the world. This chapter has first described the phenomenon of SI and various factors affecting simultaneous interpreters' performance and introduced

translation direction as a possible factor affecting the interpreting processes and products. A consequent review of the arguments for and empirical studies on the role of translation direction in simultaneous interpreting revealed an interesting yet incomplete picture of the issue and the intertwining relationship between translation direction and language combination. Finally, I discussed the literature relevant to interpreting strategies and pointed to the possible effect of *norms* on interpreters' behaviors in different language directions. I delineate the method used in study in the next chapter.

# Chapter 3: Method

This study approached the issue of language directionality in simultaneous interpreting from multiple angles. To understand interpreters' experience of simultaneous interpreting in different language directions, B into A vs. A into B, I asked ten professional Chinese/English interpreters to interpret two speeches from English into Mandarin Chinese, and two speeches from Mandarin Chinese into English, each followed with a stimulated retrospective interview. The products of their SI were investigated through the analysis of their linguistic output, while the processes of their simultaneous interpreting were explored through the use of stimulated retrospective interviews. To enable the use of stimulated retrospective interviews immediately after the interpreting tasks, and to facilitate cross-language-direction comparison, I chose an experimental design over the use of real-life conference interpreting for this study.

## PARTICIPANTS

Ten Chinese/English professional interpreters, six women and four men, participated in this study. The participants ranged from early-30s to mid-40s in age, had received at least two years of full-time interpreting training at the post-graduate level, and had up to the time of the study at least 100 days of professional interpreting experience. All of them were free-lance conference interpreters working mainly in Taiwan, with interpreting experience ranging from 3 to 12 years, and had interpreted both from English to Mandarin Chinese and from Mandarin Chinese to English. Most of them had also been teaching interpreting courses at the undergraduate or graduate levels at the time of

recruitment.

All ten participants were native speaker of Mandarin Chinese. Seven participants identified Mandarin Chinese as their dominant language and English as their strongest foreign language. The remaining three had substantial experience of living in an English speaking country as children and either identified English as their dominant language or reported equal competence in Mandarin Chinese and English. This group of three interpreters ("English A, Chinese A/B" group) was used as a reference group for comparison and contrast purposes with the seven Chinese-dominant participants ("Chinese A, English B" group) in the data analysis.

I did not conduct any formal measurement of the participants' language proficiency, in consideration of the participants' time available for the study and that few recognized proficiency tests, especially in Chinese, can distinguish the proficiency levels of highly advanced learners as was true of the participants in the study. Instead, I used a detailed self-report of language proficiency to provide data on the participants' language learning backgrounds and various aspects of their Chinese and English proficiency. The questionnaire was modified from Golato's (1998) and involved the participants' language experiences over the course of their lifetime and a self evaluation of their language proficiency levels in various aspects of their Chinese and English (see Appendix A).

Results from questionnaire items on language learning background showed that the seven participants who reported dominance in Chinese (Chinese A, English B) all began learning English in Taiwan at the age of 12 when they first entered junior high school, except for one participant, who first began learning English at the age of 9. These participants were first immersed in English after age 20, except for one participant who

was first immersed in English at the age of 14 for one year. Their total length of extended stay in an English speaking country ranged from half a year to four years.

In their self-report of language proficiency, the biggest gap between their Chinese and English proficiency seemed to be in the area of oral proficiency, with a mean of over three points on a scale of ten. However, there was a wide range of differences across the participants, varying from one to seven. In addition, these participants reported less proficiency in informal English than in formal English both in terms of listening and speaking. Fewer differences between their Chinese and English capability were reported in the areas of grammar, vocabulary, and pronunciation.

The three participants who reported dominance in English (English A, Chinese B) or an equal ability in both Chinese and English (English A, Chinese A) were first immersed in English at ages ranging from one to eight years old and had lived in an English speaking country for 6 to 20+ years. In their self-report of language proficiency, the differences between their Chinese and English capability across all areas were generally small, usually only one point on a scale of ten.

Based on the data obtained from the questionnaire about their interpreting backgrounds (see Appendix B), both groups of interpreters interpreted into Chinese and English on a regular basis. The differences between their estimated percentages of SI work into their B language ranged from 20% to 60%. Of the seven Chinese A interpreters, five reported feeling more comfortable working into Chinese and two reported feeling equally comfortable in both directions. Of the three English A interpreters, one reported feeling more comfortable interpreting into English and two reported feeling equally comfortable in both directions.

## MATERIALS

Four criteria guided my search for the source texts in this study. First, the texts should be authentic so that the interpreters could use a variety of strategies that were available to them in their daily work. Second, the texts should be short enough to enable immediate recall of the thought processes after interpreting. Third, the texts should be difficult enough to require conscious use of strategies that are likely to be recalled by the interpreters afterwards. Fourth, the Chinese and English texts should be as comparable in various aspects as possible to facilitate comparison between language directions.

Following these criteria, I chose four authentic speeches, two in English and two in Chinese, for this study. The English texts were based on two radio addresses originally delivered by President George W. Bush of the United States. The Chinese texts were based on two speeches originally delivered by President Chen Shui-bian of Taiwan. All four texts were recited texts intended for oral delivery, with lexical and syntactic features likely to pose problems during interpreting.

The themes of the Chinese and English texts are similar in their requirement of comparable levels of background knowledge, with diverse speech content to minimize practice effect. Of the four texts, one Chinese and one English text emphasized the importance of volunteerism, while the other Chinese and English texts focused on education reform in Taiwan and in the U.S. respectively (see Appendix C for full transcripts of the speeches. The transcript for CHEN_EDUCATION was a revised version after the pilot study).

To minimize fatigue effects, I modified the original texts in the following ways to make them of similar length:

BUSH_VOLUNTEERISM (607 words[2]): Five sentences from a different radio address delivered by President Bush on the topic of volunteerism were inserted at appropriate places in the original text.

BUSH_EDUCATION (626 words): Same as original

CHEN_VOLUNTEERISM (604 words[3]): A few sentences near the beginning and end of the speech were deleted.

CHEN_EDUCATION (621 words): The beginning and concluding remarks of the speech did not deal with education reform but instead with the opening ceremony of a science museum and therefore were deleted. Two sentences that were too closely tied with a political event occurring at the time the speech was originally delivered were also deleted. In addition, a few numbers occurring in the speech were deleted.

Two native speakers from each language reviewed the modified texts and agreed that the modified texts sounded natural and coherent.

In both the Chinese and English texts, the EDUCATION speech may be considered more difficult as it contained more information than the VOLUNTEERISM speech. Also, the EDUCATION speeches also contained more references to numbers, which are a

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[2] The word count of English is based on the results of Microsoft Word's word count function. All numbers and acronyms were completely spelled out.

[3] Determining word counts of the Chinese texts was difficult because word boundaries are not marked in Chinese text. The unit of language most people are familiar with is *zi(字)*, the individual characters (morphemes) occupying a uniform space (Chao, 1968). To determine the number of syntactic words, or *ci(詞)*, that usually consist of two or more characters, in the Chinese texts, I first used the automatic word segmentation system developed by the Institute of Information Science, Academia Sinica, to demarcate the texts. The segmentation was edited for segmentation errors and further edited according to the following criteria: 1) for words from classical Chinese, individual morphemes were counted as separate words (Hoosain, 1992); 2) for words with both number and its measuring unit, the number and the unit were counted as separate words. The resulted segmentation can be founded in Appendix D (the segmentation for CHEN_EDUCATION was based on the revised version after the pilot study).

frequent source of problems in interpreting (Gile, 1995). Three numbers in the CHEN_EDUCATION were especially problematic because they involve the Republic of China Year system and interpreters may choose to convert the year mentioned to the western year system by adding 1911, which was the year the Republic of China was first founded, to make the message comprehensible to a non-Taiwanese audience.

Because no audiotape of the two Chinese texts was available, the Chinese texts were recorded by a male native speaker of Mandarin Chinese from Taiwan for the purpose of this study. To ensure that the sound quality of the English texts would be comparable with the Chinese texts, the two English texts were also recorded again by a male native speaker of English from the United States. The four texts were later digitized and manipulated by using sound-editing software to produce two versions of each text that differed in speed. The slow version ran at 100 words per minute, which is considered the maximum speed for interpreters to work comfortably for recited text (Lederer, 1981, cited in Setton, 1999). A fast version of 130 words per minute was also generated in an attempt to introduce the variable of delivery speed as another possible factor affecting interpreters' cognitive processes.

I also prepared a text originally delivered by President Chen Shui-bian, of about 200 words at the speed of 100 words per minute to be used as a practice speech (See Appendix E).

### PILOT-TESTING OF THE MATERIALS

I conducted a pilot study in April, 2004 with five Chinese/English conference interpreting students near the end of their training at a graduate school of translation and

interpretation in the U.S. In addition to testing the appropriateness of the materials, the pilot study was also intended to determine the most effective stimulus for the retrospection to be used in the main study. Four types of stimuli were tested in the study:

1. Script of the source text;
2. Script and audio-recording of the source text;
3. Script of the source text, and audio-recording of the source text and the interpreter's interpreting;
4. Script of the source text, audio-recording of the source text, and video-recording of the interpreter's interpreting;

In addition, I also took notes of any unusual hesitations, mistakes, or omissions during the interpreting and used my notes to initiate questions during the retrospection session when necessary.

The results of the pilot study showed that the use of the script of the source text, along with the audio-recording of the source text and the interpreting, elicited more comments from the participants than other types of stimuli and was perceived by all the participants to be more effective in helping them recall what they had been thinking during the interpreting tasks. Therefore, I decided to use this combination in the main study.

Of the four source texts used in the pilot study, the CHEN_EDUCATION was found by the participants to be the most difficult, mainly because of the complexity of numbers contained in the text. The text was therefore further revised to keep the number of numbers and their complexity in the speech more comparable to the BUSH_EDUCATION speech. Of the three numbers that involve the Republic of China

system, only one number was retained as original. The total number of words of the text was reduced from 621 to 611 words after the revision. The text was then reviewed again by two native speakers of Chinese to assure it still was natural.

## PROCEDURE

I met with each participant in individual sessions to collect data for this study. For all but one participant, the study was carried out at a simultaneous interpreting lab at a graduate school of translation and interpretation in Taiwan. The exception was one interpreter who was tested in a standard language lab. The simultaneous interpreting lab was equipped with interpreting booths similar to what professional interpreters encounter in real conference settings. In the following, I describe the four major stages of data collection in this study.

### Language Background Questionnaire

When the interpreters came to the experiment site, they first signed a consent form and then filled out a detailed questionnaire on their language learning background (see Appendix A). My reason for administering the questionnaire to the interpreters before the interpreting tasks was to prevent them from confusing their language proficiency with their interpreting skills.

### Warm-up and Training Sessions

After completing the questionnaire, the interpreters were provided with a written description of the procedure of the study (see Appendix F). They then had a two-minute warm-up session on the practice speech in order to become familiar with the equipment.

The practice speech was followed with a stimulated retrospective interview training session, during which I conducted a mini-retrospective interview to familiarize the participants with the procedure. I read a prepared written instructions (see Appendix G) for stimulated retrospective interviews to the participant at the beginning of the training session and I reminded them to feel free to ask any questions during the training session to ensure they understood the nature of the retrospection task.

A summary containing information about the topic of the speech, the speaker, the audience, the date and occasion of the speech, and a few terms occurring in the speech along with their translation, was given to the interpreters before the practice speech, a procedure that would later be repeated for every interpreting task (see appendix H). The reason for providing the summary was to provide the basic knowledge an interpreter should have had before entering the booth in a real conference and also to observe the interpreters' preparation strategies for the interpreting task. I informed the interpreters that, when they wanted to write down anything during their interpreting, they should use the blank part of the paper containing the summary. I noticed that some participants used these notes to help themselves recall their thinking processes in the retrospective interviews.

**Interpreting Tasks and Stimulated Retrospective Interviews**

After the practice speech and the training session, the participants were asked to interpret the first, second, third, and fourth speeches, each followed by a stimulated retrospective session. All interpreting was audio-recorded on dual-track tapes. All participants were assigned one slow and one fast speech in each language direction. The

order and speed of the four speeches was systematically varied across the participants to distribute practice and fatigue effects.

As described above, after finishing each speech interpretation, the participant was asked to do a stimulated retrospection on his or her cognitive processes during the interpreting task. Despite its controversies, retrospection has been widely used in investigations of cognitive processes involved in various linguistic activities (Gass & Mackey, 2000), including translation. Retrospection is increasingly being used in the study of interpreting strategies and has been found to be a useful tool to provide information on the interpreting processes otherwise unavailable (Kohn & Kalina, 1996; Ivanova, 1999, 2001; Vik-Tuovinen, 2002). I provided the script of the source text and the audio-recording of both the source text and the interpreting to help the interpreters' recall. The participants were instructed to stop the tape and make comments whenever they remembered something they were thinking during the interpreting task. I also provided prompts when necessary, with the notes I had taken during the interpretation about any hesitations, mistakes, or any behavioral cues (Ivanova, 2001).

At the end of the fourth retrospective interviews, the participants were asked to comment on the differences between their experience of interpreting from English to Chinese and interpreting from Chinese to English in general. All interpreting tasks and retrospective interviews were audio-recorded for later analysis.

**Questionnaires on Interpreting Performance and Interpreting Backgrounds**

Finally, two questionnaires were administered. One was to collect data about the participants' feelings about their own performance in this study (adopted from Liu, 2001;

see Appendix I) and the other was to learn about the participants' interpreting backgrounds (see Appendix B).

The whole procedure took approximately three hours.

## DATA ANALYSIS

Thirty-nine interpreting outputs and forty retrospective interviews were collected in this study. One interpreting output is missing because of technical problem that occurred during the recording. During the retrospective interview for that particular interpreting task, only the script of the source text, the notes I had taken, and the notes the participant had written on the summary sheet were used.

The performance data from the one participant with a speech output missing were excluded from the quantitative data analysis. Therefore, only 36 interpreting outputs were subject to quantitative analysis. In the qualitative data analysis, I included all 40 retrospective interviews from the ten participants. To familiarize myself with the data for analysis, I personally transcribed all the interpreting outputs and retrospective interviews.

### Analysis of Interpreting Outputs

I subjected the participants' interpreting outputs to two types of quantitative analysis: a propositional analysis of their semantic content and an error analysis of their linguistic quality.

#### *Propositional Analysis of Semantic Content*

A propositional analysis was conducted to assess the participants' interpreting performance in terms of content accuracy. Propositional analysis is a method of

representing the semantic content of a text in the form of a list of propositions, or a text base (Kintsch, 1974). This theoretical approach has been widely used for evaluating text comprehension and recall and has also been used by some interpreting researchers to measure interpreters' output accuracy (Tommola & Lindholm, 1995; Tommola & Heleva, 1998; Hamers, Lemieux & Lambert, 2002).

Following the guidelines described by Bovair and Kieras (1985), I first propositionalized the four source texts in this study. The following is an example of this propositionalizing procedure:

Original Text:

*With the No Child Left Behind Act, America began a promising era in our public schools, an era of local control, high standards, and accountability that will produce better results for America's students.*

Propositional Description:

| | |
|---|---|
| P1 | (WITH AMERICA ACT) |
| P2 | (LABEL ACT NO-CHILD-LEFT-BEHIND-ACT) |
| P3 | (BEGIN AMERICA ERA) |
| P4 | (MOD ERA PROMISING) |
| P5 | (IN P3 SCHOOL) |
| P6 | (MOD SCHOOL PUBLIC) |
| P7 | (MOD P6 OUR) |
| P8 | (OF ERA CONTROL) |
| P9 | (MOD CONTROL LOCAL) |

P10 (OF ERA STANDARD)

P11 (MOD STANDARD HIGH)

P12 (OF ERA ACCOUNTABILITY)

P13 (PRODUCE ERA RESULT)

P14 (MOD RESULT BETTER)

P15 (FOR P14 STUDENT)

P16 (POSSESS AMERICA STUDENT)

The results showed that BUSH_VOLUNTEERISM contained 263 propositions, BUSH_EDUCATION 297 propositions, CHEN_VOLUNTEERISM 283 propositions, and CHEN_EDUCATION 304 propositions (see Appendix J for samples of propositionalized text from each speech).

Instead of conducting the lengthy process of propositionalizing the 36 target texts and comparing the propositions from the source and target texts against each other, I judged the target texts directly against the propositionalized source texts. By comparing the propositionalized source text with its corresponding target text, I identified the propositions of the source text that were represented in the target text in an identical manner (identical propositions), in a similar manner (similar propositions), in an erroneous manner (erroneous propositions), as well as propositions that were not represented in the target text at all (omitted propositions). Propositions that were not represented in the source text but were represented in the target texts (added propositions) were not calculated in the scoring, but interesting examples of additions were underlined

and subject to qualitative analysis, along with the comments made by the interpreters during the retrospective interviews, if there were any.

A few modifications of the propositional scoring were made to take into consideration interpreters' strategy use. For example:

1. A proposition within the scope of the generalized propositions was scored as *similar proposition*.

ST: …men, women, and children facing hunger, homelessness, illness, addiction, or despair.

TT: ….men, women, old people and children facing hunger, homelessness, illness or other problems.

2. Propositions that were identified as paraphrases of the source text propositions were scored as *similar propositions*

ST: …volunteering your time at a soup kitchen….

TT: …to take part in volunteer work related to food donation…

To maintain the straight-forwardness of propositional scoring, I did not aim to take into account all possible interpreting strategies, such as intentional omission of speech segments to maintain text coherence or omission of redundancy in the texts. Instead, I focused my attention on the consistency of judging criteria across speeches and across participants. To ensure this consistency, I scored no more than 50 propositions (or about five sentences) from the target text at a time with each participant's output and constantly compared my scoring of each participant's output with my scoring of outputs from other participants. After finishing the judging of each participant's output for the first 50 propositions in the source text, I proceeded to the next 50 propositions. The

procedure was repeated until all the propositions in the source text were scored for each participant. In places where I was uncertain about the scoring, the propositions and their corresponding segment in the target text were marked for later discussions with a text analysis expert. A definite score was given after the discussions.

Finally, it should be noted that, although I had tried to identify five different categories of propositions in my scoring, after finishing the scoring process, I decided only to focus my analysis on the categories of identical and similar propositions. The decision was made after realizing from the participants' retrospective interviews that the processes leading to the productions of the other categories may be too complex to be dealt with quantitatively in this study. Consequently, for the purpose of this study, I only calculated a propositional accuracy score for each of the 36 interpreted texts by dividing the number of the identical and similar propositions combined by the total number of propositions in each original speech. A repeated measure between-subjects ANOVA was conducted to evaluate the effect of between and within-subject factors on the propositional accuracy scores.

***Error Analysis of Linguistic Quality***

Two native speakers of English and two native speakers of Mandarin Chinese were asked to evaluate the linguistic accuracy of the target texts independently. All judges were provided with a scoring guideline, 16 transcriptions of the interpreters' outputs, and the original recordings of the interpreters' outputs. No source speech was provided to them. I went through one speech with each judge to familiarize them with the scoring procedure as training and discussed any questions they had about the judging

criteria. The judges were instructed to base their judgment on the recordings, not the transcriptions and to identify four categories of linguistic features in each text: 1) grammatical errors; 2) lexical errors; 3) incomplete sentences; 4) self-corrections (see Appendix K).

After the scoring was completed, I counted the numbers of errors from each judge. During the counting process, it soon became clear that sometimes the judges had difficulty deciding to which category an error belonged, especially between the categories of grammatical errors and lexical errors. To facilitate the counting process, I decided to merge these two categories to form a new category named *language use errors*. The categories of incomplete sentences and self-corrections were also merged to form another new category named *presentation errors*.

Using Spearman's rho, the two English judges were found to achieve an inter-rater reliability of .78 and the two Chinese judges were found to achieve an inter-rater reliability of .81. The two sets of scores given by the Chinese and the English judges were averaged to represent the number of errors made by each participant in each language direction. It should be noted that the number of errors each participant made were likely to be affected by the text length he or she produced. Because of the inherent difficulty in making the number of characters in the Chinese interpreted texts comparable with the number of words in the English interpreted texts, a compromise was reached by dividing the raw scores by the duration of each source speech. As all participants finished their interpreting almost at the same time as the speaker, the comparison of their frequency of errors made per minute of the source speech should achieve a similar effect as comparing their frequency of error made per minute of their interpreting.

A repeated measures between-subjects ANOVA was conducted to evaluate the effect of between and within-subject factors on the frequency of language use errors and presentation errors respectively.

**Analysis of Interpreting Process**

The retrospective interviews from the ten participants were fully transcribed, alongside the referenced source and target text segments. To manage the rich data generated from the 40 retrospective interviews, I followed the guidelines suggested by Strauss and Corbin (1998) and conducted open coding, axial coding, and selective coding.

According to Strauss and Corbin (1998), coding procedures can help identify, develop, and relate the concepts in the raw data for building a grounded theory emerging from the data. To open up the inquiry widely, I first conducted open-coding of the 40 transcripts, identifying and labeling the thoughts and meaning units in the data by a detailed analysis of each transcript and constant comparison of one transcript with another. As I read through the data, I also compared the participants' comments with the segments of the source and target texts to which they referred. Through this microscopic examination, I identified the concepts represented in the data, as well as the properties and dimensions of these concepts. The labels for these concepts were later further developed and revised when the other coding procedures were conducted. A final version of all the concepts represented in the open coding can be found in Appendix L.

As the concepts in the data were being identified in open coding, I also started to make memos on the possible relationships between and among these concepts. When I

proceeded to axial coding of the data, I used these notes to help me relate main categories in the data to their subcategories. Diagrams were made at this stage to help clarify the relationship between various categories. In addition, by transferring the codes made from paper to computer, I was able to compare the categories and subcategories by a number of variables, including individual participants, source texts, delivery speeds, and language directions. A mini-portrait for each participant was made for within-case analysis to test the hypotheses derived from the data. I also conducted cross-case analysis by comparing and contrasting the experience of the ten participants. Special attention was given to the similarities and differences between the seven Chinese A/English B interpreters and the three English A/ Chinese A or B interpreters.

The categories developed from open and axial coding were furthered refined and integrated during the selective coding process. A central category was determined after reviewing the concepts and hypothesis emerging from the data. I then used diagrams to facilitate the process of integrating the concepts around the central category to develop a theory for the issue of language direction in Chinese/English simultaneous interpreting. Finally, I compared the theory to the raw data collected from the ten participants.

**Trustworthiness**

Several strategies were used to enhance the trustworthiness of the qualitative component of this study. First, I used multiple sources of data, including interpreting output, the retrospective interviews, and the questionnaires, to confirm the emerging findings in the study. Comments participants made during the retrospective interviews were validated with their interpreting output wherever possible. In addition, during the

stimulated retrospective interviews, in an effort to prevent the participants from inferring from their interpreting output rather then recalling their thought during the interpreting, I often reconfirmed with the participants if one particular comment they had just made represented their thought "in the booth" and not something they had only thought of during the interviews after listening to their own interpreting. Comments that were clearly an after-thought were not included in the coding processes. In addition, although I sometimes prompted the participant to comment on particular segments of their target texts that I considered unusual or interesting, when participants replied "I don't remember" or "I don't know," the comment was immediately accepted and the interview went on.

However, when participants commented about the principles that guided their choice of strategies in general or their experience of interpreting elsewhere, I usually followed up on their comments to find out more about their beliefs about the interpreting processes and if their performance or behaviors in the study reflected what they usually did in real conferences. Although this type of questioning may have reduced the validity of their retrospection protocol, it increased my understanding about the participants' beliefs and experiences of interpreting and also about the extent to which the findings from this experimental-setting study can or cannot be replicated in real conferences. During the coding procedure, a "(p)" was added to each code that derived from comments that were made after my prompting to distinguish these types of comments from the comments the participants initiated themselves. Special attention was then given to these types of comments when developing my theory to avoid confusing the interpreters' beliefs with their recalling of their interpreting processes.

Finally, regarding my data analysis processes, as a former Chinese/English conference interpreter in Taiwan myself, and the primary instrument for gathering and analyzing the data, I tried to open up my mind and avoid being influenced by my own experiences and beliefs in my analysis of the data. In addition to regularly checking the appropriateness of procedure used for my data analysis with my advisor, I often elicited her comments on emerging findings and experimented with different possibilities of explaining the data that resulted from our discussions. Recognizing the inevitable role of the researcher's assumptions and bias in qualitative research, I include a disclosure of my experience and beliefs about the issue of directionality in simultaneous interpreting in the next section, where I address the general issue of myself as instrument.

**Researcher as Instrument**

I was a professional Chinese/English interpreter in Taiwan for four years. My *A* language was Mandarin Chinese. My *B* language was English, which I began learning after entering junior high school in Taiwan, as most of the Chinese A/ English B participants in the study. In my two-year postgraduate study at the Graduate School of Translation and Interpretation at the Monterey Institute of International Studies in California, I was trained in interpreting in both directions. After I returned to Taiwan and worked as a free-lance interpreter, I very often had to interpret into both directions when hired to do conference interpreting.

The issue of directionality has interested me not only because I found interpreting in both directions a fact of life for most Chinese/English interpreters in Taiwan, but also because I had found SI into English, my B language, a big challenge for me ever since I

began studying to be an interpreter. However, although I continued to find interpreting into English a more difficult task than interpreting into Chinese even after working as a professional interpreter for several years, I also had come to notice that some colleagues, who had the same A/B language background as I do, seemed to do their interpreting into English beautifully and with ease, and occasionally these colleagues even expressed preference for working into English, their B language.

It was against this backdrop that I started my research on the issue of directionality in SI, and my role as not only an interpreting researcher and a former interpreter has certainly influenced this study, as my *in-group* position provided me with both advantages and disadvantages in my research.

As a former Chinese/English interpreter in Taiwan myself, I had easier access to the participants for this study. I approached the participants by first contacting my former interpreting colleagues, classmates, and teachers, and asked if they would be willing to participate in my research and/or refer me to interpreters they knew who met the criteria for this study. Although I still found it difficult to persuade people to participate in a study that was as time-consuming and potentially stress-provoking as this one, I was able to recruit ten participants who I believe represent at least half of the interpreters working in Taiwan who met the criteria I set for this study to my knowledge.

Moreover, because of my experience as an interpreting student and later a professional interpreter and interpreting teacher, I was able to understand what my participants said about their study, work, or teaching easily.

However, the fact that I knew most of the participants in this study personally also presented problems. First, it may have been embarrassing for the participants to hear

some of the errors or omissions they made in their interpreting during the retrospective interviews. While we were all aware that some errors or omissions were inevitable in simultaneous interpreting, the stress they may have felt as if their performance was being evaluated by a former colleague could have prevented them from commenting on some segments of the speeches or became more conscious of their errors during the interpreting.

In addition, during the retrospective interviews, sometimes a participant would ask me what I would say in a particular situation or gave comments such as "you are an interpreter yourself, you know this well," or "remember what we were taught at school? " that seemed to expect me to fill in the rest. Therefore, sometimes I felt I had to make an extra effort to solicit a more complete comment from the participants.

In general, as I mentioned earlier, I tried to be open-minded in my collection and analysis of the data, but the interaction between the participants or the data and me must nevertheless still be colored by who I am as the research instrument for this study.

# Chapter 4: Results

In this chapter, I first present the results of the quantitative analysis of the participants' interpreting outputs. I then describe the major themes that emerged from my analysis of the participants' interpreting processes. Finally, I outline a model for simultaneous interpreting derived from the data and illustrate the role language direction played in Chinese/English interpreters' strategy use and performance.

As mentioned earlier, performance analysis for professional interpreters is a highly sensitive issue. Given that many of the participants of the study are colleagues working closely with each other and that there are a limited number of interpreters in the field, to ensure anonymity of each participant, I adopted an unusual approach in presenting the data. For the presentation of the performance data, each participant was given a random number that cannot be traced to order of testing or other individual characteristics. For the presentation of the retrospective interview data, each participant was assigned a random alphabet letter that is unrelated to the random numbers used in the performance data section and again cannot be traced to any individual characteristics. In addition, although a mini-portrait for each participant was made to facilitate my own data analysis, I do not present profiles of individual participants. This approach to presenting data inevitably entails some loss of information to the readers; however, it is the only way I feel I can fulfill my obligation to protect the anonymity of my participants when any hint of negative evaluation can affect someone's professional reputation.

## ANALYSIS OF INTERPRETING OUTPUTS

As mentioned earlier, the interpreting outputs from the participants were subject to two types of quantitative analysis: a propositional analysis of their content and an error analysis of their linguistic quality. The data from one participant dominant in Chinese were excluded from the analysis because her output for one of the four speeches was not recorded. Therefore, only 36 speeches in total, or the data from the six participants who were Chinese-dominant (C1 to C6) and the three participants who were English-dominant or equally dominant in Chinese and English (E1 to E3) were analyzed.

### Propositional Analysis of Semantic Content

The propositional analysis of the four source texts showed that BUSH_VOLUNTEERISM contained 263 propositions, BUSH_EDUCATION 297 propositions, CHEN_VOLUNTEERISM 283 propositions, and CHEN_EDUCATION 304 propositions. After identifying the source text propositions identically or similarly represented in each interpreted text, a propositional accuracy score was calculated for each participant and for each source text by dividing the number of identical and similar propositions by the total number of the source text propositions.

Given the small sample size and unbalanced design of this study that may make inferential statistical analysis of the results suspect, in the following I first describe the results of propositional accuracy scores from each participant as individuals. Following this brief description, I proceed to present the descriptive and inferential statistics of the results from the participants as two groups.

***Results for Each Participant***

As illustrated by Figure 1, the results of propositional accuracy scoring showed a clear effect of language direction on individual participants. For participants C1 to C6, who reported dominance in Chinese, the propositional accuracy scores were consistently higher when they interpreted from English to Chinese or from B to A. For participants reporting dominance in English or equal ability in Chinese and English, E2 and E3 performed better when they interpreted from Chinese to English, or from B to A; E1 performed better when interpreting from English to Chinese, or from A to B, but the difference between this participant's Chinese and English performance was smaller than for all participants reporting dominance in Chinese.

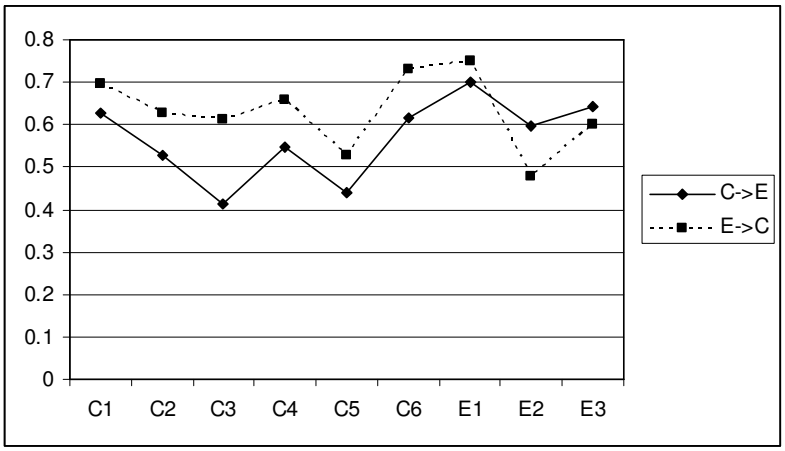


Figure 1. Propositional accuracy scores according to source speech language

In addition to a language direction effect, a source text speed effect can be observed from Figure 2, which displays the individual participants' propositional accuracy scores according to the speed of the source texts. Except for C1 and E2, who

performed very similarly at both slow and fast speed, higher propositional accuracy scores were observed when the participants interpreted source texts delivered at slow speed.

It should also be noted that, as can be observed from Figure 1, the performance of individual participants in one language direction seems to parallel their performance in the other direction. Likewise, as illustrated by Figure 2, the performance of individual participants at one speed also seems to parallel to some degree their performance at another speed.

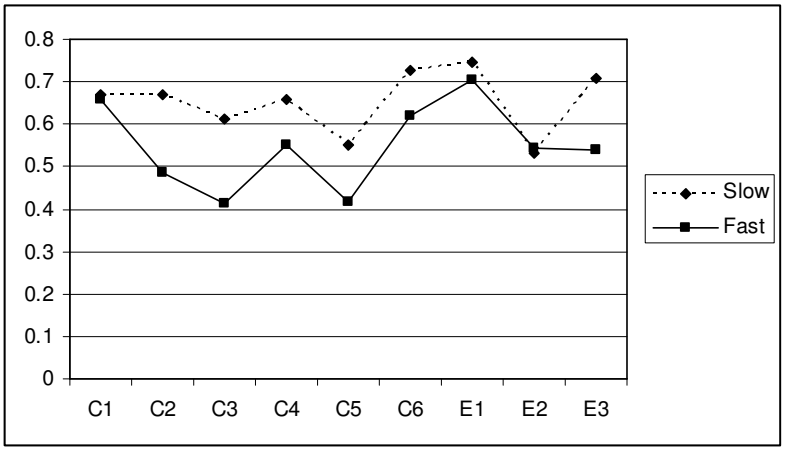


Figure 2. Propositional accuracy scores according to source speech speed

***Inferential Statistical Analysis***

A between-subjects repeated measures ANOVA was conducted to evaluate the effect of source speech language and speed of speech on propositional accuracy scores. The dependent variable was the propositional accuracy scores. The within-subjects factors were source speech language with two levels (Chinese and English) and speed of

source speech with two levels (fast and slow). The between-subjects factor was the participants' A language.

No significant between subject effect was observed in the analysis, suggesting there was no difference between the performance of participants with Chinese or English as their A language when evaluated by the percentage of propositions correctly interpreted. The speed main effect was significant, $F(1, 7) = 12.74$, $p = .009$, indicating the participants' performance was affected by the speed of the source speeches. Table 2, displaying the means and standard deviations of the participants' performance for different speeches at different speeds, shows they performed better at the 100 words per minute level than at the 130 words per minute level.

Table 1. Mean Scores and Standard Deviations for Propositional Accuracy According to Source Speech Language and Speed

| Source speech | Participants' A language | n | Mean | SD |
|---|---|---|---|---|
| CHEN_slow | Chinese | 6 | .57 | .06 |
| | English | 3 | .69 | .06 |
| CHEN_fast | Chinese | 6 | .50 | .12 |
| | English | 3 | .60 | .07 |
| BUSH_slow | Chinese | 6 | .73 | .07 |
| | English | 3 | .63 | .17 |
| BUSH_fast | Chinese | 6 | .56 | .08 |
| | English | 3 | .58 | .11 |

Although there was a lack of significant source speech language main effect, there was a significant source speech language x A language interaction effect, $F(1,7)=12.78$, $p=.009$. A follow-up pair-wise comparison using Bonferroni adjustment showed that, for participants with Chinese A, the propositional accuracy scores were significantly different when they interpreted in different directions ($p=.002$). A comparison of means of their performances in response to different source speeches in Table 2 indicated they performed better when interpreting from English to Chinese (B-A) than when interpreting from Chinese to English (A-B). For participants with English A, however, no significant difference was observed ($p=.334$), indicating they did not perform differently in interpreting in different directions.

In addition, a significant source speech language x speed x A language interaction effect, $F(1, 7)=7.59$, $p=.028$, was observed in the analysis. Follow-up pair-wise comparisons using Bonferroni adjustment indicated that participants with Chinese A perform differently when interpreting at different speeds for both the Chinese speech ($p=.048$) and the English speeches ($p=.002$). For participants with English A, however, there was no significant difference observed at different speeds for either the Chinese speeches ($p=.107$) or the English speeches ($p=.381$).

It should be noted at this point that, given that there were only three participants in the English A group, it is possible that the nonsignificant results for the English A group were a result of small number with relatively large variance.

To evaluate the effect of source speech topic, a between-subjects repeated measures ANOVA was conducted again in which the within-subjects factors were source

speech language with two levels (Chinese and English) and source speech topic with two levels (volunteerism and education).

No significant source speech topic main effect was observed, $F(1,7)=1.14$, $p=.32$, nor was there any significant interaction effect involving source speech type, indicating the participants' performance was not affected by whether the speech topic was volunteerism or education. However, a comparison of means as displayed in Table 2 shows a consistently better performance when interpreting the VOLUNTEERISM speeches than the EDUCATION speeches, suggesting that the EDUCATION speeches may have been more difficult for the participants, especially for the Chinese A group when interpreting from Chinese to English (A-B).

Table 2. Mean Scores and Standard Deviations for Propositional Accuracy According to Source Speech Language and Topic

| Source speech | Participants' A language | n | Mean | SD |
|---|---|---|---|---|
| CHEN_VOL | Chinese | 6 | .57 | .06 |
| | English | 3 | .66 | .08 |
| CHEN_EDU | Chinese | 6 | .48 | .11 |
| | English | 3 | .62 | .08 |
| BUSH_VOL | Chinese | 6 | .65 | .10 |
| | English | 3 | .61 | .14 |
| BUSH_EDU | Chinese | 6 | .62 | .13 |
| | English | 3 | .60 | .14 |

To take into account the rather large difference between the numbers of propositions in BUSH_V and CHEN_V, the two ANOVA procedures described above were both conducted again using the total numbers of identical and similar propositions as the dependent variable. The same results were observed from the analysis, except that the source speech x speed x A language interaction effect became nonsignificant, $F(1, 7)=2.51$, $p=.157$.

## Error Analysis of Linguistic Quality

As described earlier, given the small sample size and unbalanced design of this study, in the following I first describe the results of error analysis for each participant as individuals. Following this description, I proceed to present the descriptive and inferential statistics of the results from the participants as two groups.

### *Language Use Errors*

Figure 3, displaying the frequency of language use errors made per minute of the source speech by each participant in each interpreting direction, shows that participants C1 to C6, who reported dominance in Chinese, made more errors when interpreting from Chinese to English, or from their A language to their B language. For participants E1 to E3, who reported dominance in English or equally ability in Chinese and English, although there were still a greater number of errors observed when interpreting from Chinese to English, the gaps between the numbers of errors made in the two directions were smaller, especially for participant E1 and E3.

Figure 4, which displays each participant's frequency of language use errors according to the speed the source speeches were delivered, shows no apparent effect of speed on the frequency of errors across the participants.

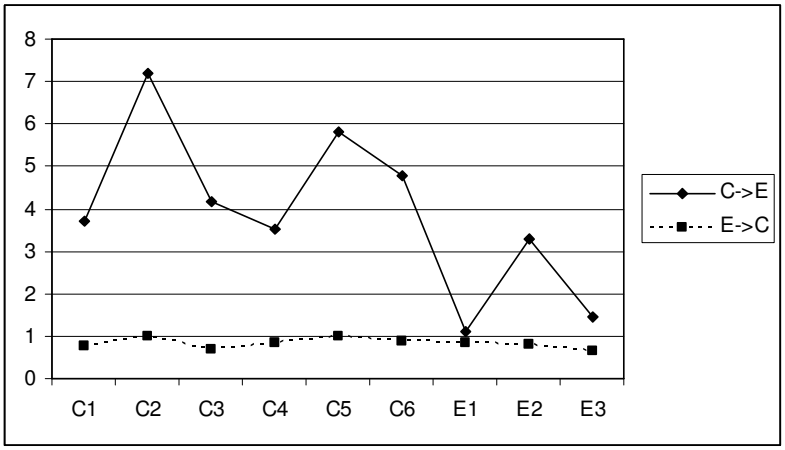


Figure 3. Frequency of language use errors per minute made by participants according to source speech language

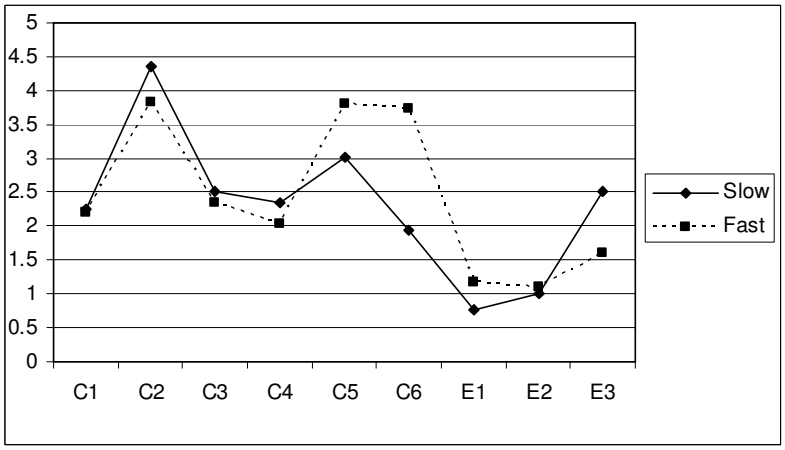


Figure 4. Frequency of language use errors per minute made by participants according to source speech speed

Table 3 displays the frequency of language use errors according to source language and speed. A two-way between-subjects ANOVA was conducted to evaluate the effect of source speech language and speed of speech on the number of language errors made by the participants. The dependent variable was the frequency of language errors in the interpreted speeches per minute of the source speech. The within-subjects factors were source speech language with two levels (Chinese and English) and speed of source speech with two levels (fast and slow). The between-subject factor was the participant's A language.

A significant between subject effect was observed in the analysis, $F(1,7)=8.85$, $p=0.021$, indicating that participants with different A languages performed differently in terms of the number of language use errors they made when interpreting in different directions. The source speech language main effect was significant, $F(1, 7)=33.81$, $p=.001$, as was the source speech language x A language interaction effect, $F(1, 7)=9.77$, $p=.017$. Follow-up pair-wise comparisons using Bonferroni adjustment indicated that participants with Chinese A performed differently in terms of language use errors when interpreting from Chinese to English and from English to Chinese ($p=.000$). For participants with English A, however, there was no significant difference observed at different language directions ($p=.144$).

Table 3. Mean Scores and Standard Deviations for language Use Errors According to Source Speech Language and Speed

| Source speech | Participants' A language | n | Mean | SD |
|---|---|---|---|---|
| CHEN_slow | Chinese | 6 | 4.70 | 1.60 |
| | English | 3 | 2.25 | 1.53 |
| CHEN_fast | Chinese | 6 | 5.03 | 1.51 |
| | English | 3 | 1.67 | 0.86 |
| BUSH_slow | Chinese | 6 | 0.78 | 0.34 |
| | English | 3 | 0.60 | 0.42 |
| BUSH_fast | Chinese | 6 | 0.95 | 0.36 |
| | English | 3 | 0.91 | 0.51 |

***Presentation Errors***

Figure 5 displays the frequency of presentation errors per minute of the source speech made by each participant in each language direction. Across all participants, except for C6, the frequency of presentation errors did not seem to be affected very much by interpreting direction.

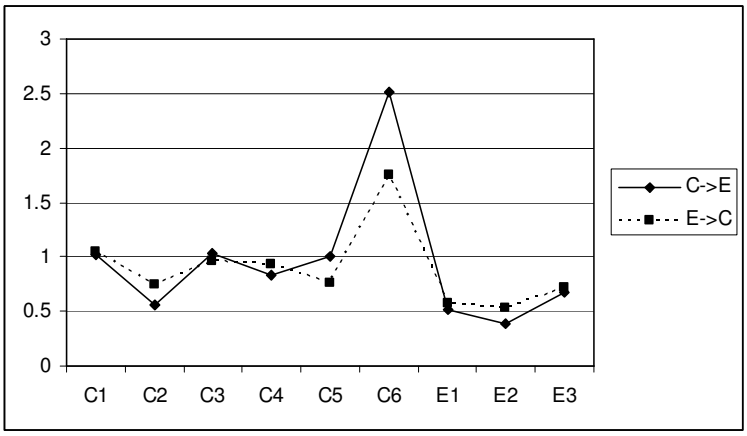


Figure 5. Frequency of presentation errors made by participants according to source speech language

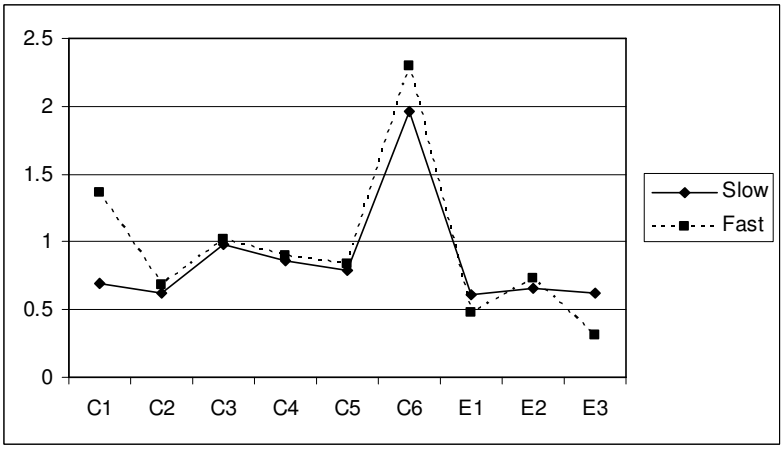


Figure 6. Frequency of presentation errors made by participants according to source speech speed

Table 4 displays the mean scores for presentation errors according to source language and speed. A repeated measures between-subjects ANOVA was again conducted to evaluate the effect of source speech language and speed on frequency of presentation errors made by the participants. No significant main or interaction effects

were found, indicating that the number of presentation errors was not affected by source speech language, speed, or A language in this study.

Table 4. Mean Scores and Standard Deviations for Presentation Errors According to Source Speech Language and Speed

| Source speech | Participants' A language | n | Mean | SD |
|---|---|---|---|---|
| CHEN_slow | Chinese | 6 | 1.20 | .70 |
| | English | 3 | 0.66 | .22 |
| CHEN_fast | Chinese | 6 | 1.07 | .70 |
| | English | 3 | 0.39 | .16 |
| BUSH_slow | Chinese | 6 | 0.77 | .37 |
| | English | 3 | 0.60 | .16 |
| BUSH_fast | Chinese | 6 | 1.30 | .53 |
| | English | 3 | 0.63 | .36 |

**Correlational Analysis of Language Proficiency and Interpreting Outputs**

To explore the possible relationships between the participants' reported Chinese and English proficiency and their interpreting outputs, Pearson product-moment correlation coefficients were computed between the gaps in the participants reported Chinese and English capabilities, including their oral proficiency and their command of

grammar and vocabulary, and the gaps in their performances in different interpreting directions as reported in the previous two subsections. As indicated in Table 5, significant correlations were found between the participants' self-perceived gaps in their Chinese and English oral proficiency, $r = .84$, $p = .005$, as well as gaps in their command of grammar and vocabulary, $r = .77$, $p = .016$, and the gaps in their propositional accuracy scores in interpreting in different directions. Similar results were observed when Spearman's Rho correlation coefficients were computed. The results suggest that for participants who perceived bigger gaps in their Chinese and English oral proficiency or grammar and vocabulary capacities, there tended to be also bigger gaps in their propositional accuracy scores between their English-to-Chinese and Chinese-to-English interpreting.

Table 5. Correlation Coefficients of the Participants' Performance Gaps Between Interpreting in Different Directions with Self-reported Language Proficiency Gaps

| *Performance Gaps* | *Oral Proficiency Gaps* | *Grammar/ Vocabulary Gaps* |
|---|---|---|
| Propositional Accuracy Scores | .84* | .77* |
| Language Use Errors | -.43 | -.28 |
| Presentation Errors | -.15 | .03 |

However, it is interesting to note that no significant correlation was found between the participants' reported gaps in their Chinese and English capabilities and the gaps in their language use errors (i.e. numbers of grammatical and lexical errors) or presentation errors (i.e. numbers of incomplete sentences and self-corrections) when interpreting in different directions. In other words, while the participants' perceived gaps between their A and B language capacities were strongly reflected in the propositional

gaps between their B-to-A and A-to-B interpreting, these gaps in language capabilities were not equally reflected in the linguistic quality of their interpretation. One possible explanation for this asymmetry is that the participants, consciously or unconsciously, had adopted different strategies for B-A and A-B interpreting according to their perceived gaps in their own A and B language proficiency. As can be seen in the data from the stimulated retrospective interviews I present below, it is plausible that this asymmetry is indeed at least in part a reflection of the participants' use of omission or condensation strategies and their attitudes about language choices when interpreting in different directions.

### ANALYSIS OF INTERPRETING PROCESS

In this study, each interpreting task was followed by a stimulated retrospective interview that aimed at eliciting the participants' thought processes during the interpreting. The length of each interview varied widely across participants, ranging from less than 15 minutes for some participants to over 30 minutes for others, but the categories of comments they made were quite similar. These interviews, along with the final interviews on the participants' general experience of interpreting in different directions, generated rich data for this study that represent the participants' thinking processes at both the cognitive and the metacognitive levels.

In the following, I present the four major themes that emerged from the qualitative analysis of the data: (1) comprehension and production problems and strategies, (2) self-monitoring, (3) concerns about language use, and (4) self-constructed norms for interpreting. To shorten the rather lengthy presentation of the results, I do not

give the source and target speech text the participants referred to in the examples unless they are necessary for understanding the nature of the participants' comments. As mentioned earlier, to maintain anonymity of participants, in this section, each participant was assigned a random alphabet letter unrelated to the random numbers given in the previous section on their performance data. To distinguish the seven participants reporting dominance in Chinese (Interpreter A, J, K, M, N, R, V) from the three participants reporting dominance in English or equally capable of Chinese and English (Interpreter H, P, S), the latter group of participants is underlined.

## Comprehension and Production Strategies

The participants commented on a variety of comprehension and production strategies they used during the interpreting. Interestingly, the participants often commented on the same passages of a speech, which suggests that they encountered problems at similar places, even though they did not necessarily address the problems with the same strategies. There are two main sub-categories with the first, *types of strategies*, having many sub-types, and the second, *the effects of experience on strategy*, a much shorter category.

### *Types of Strategies*

Many types of strategies emerged from the participants' comments. Some strategies were applied throughout the interpreting as a general approach to the interpreting task. Others were used to address specific problems that emerged from their comprehension or production processes. I present the categories of strategies in the

following. However, it should be noted that the categories are not meant to be exclusive as the strategies often overlapped each other.

**Anticipation.** Anticipation is recognized as an important strategy for simultaneous interpreters to overcome the problems of having to produce something before the speaker finishes his or her sentences. By reducing the burden of listening to the source speech, anticipation also enables interpreters to allocate more attention to production. Many instances of anticipation were reported by the participants in this study, including anticipation based on the syntactic or semantic cues of the source speech and anticipation based on the participants' prior knowledge about the speaker or the topic of the text, as illustrated by the following comments[4]:

> *I was thinking he would soon mention something to do with patriotism; maybe something about the military or 911 and also some religious expressions. I started to sense these things were coming. (Interpreter M, BUSH_V_slow)*
>
> *When I heard "take on special meaning in this time" I knew what's coming was either "of challenge" or "of difficulty". It was always that way. So I started to adjust my Chinese sentence structure. (Interpreter A, BUSH_V_slow)*
>
> *"No parent will have to…" is a standard reverse structure so I slowed down here. I knew I should translate it in the reverse way. (Interpreter K, BUSH_E_fast)*

[4] As the retrospective interviews were conducted in Chinese, most of the quotations from participants were originally in Mandarin Chinese and translated into English by the author. However, some participants, especially those reporting dominance in English, occasionally engaged in code-switching between Chinese and English. Hence, in their quotations, there may be some words that were originally in English.

It should be noted that most instances of anticipation were from participants dominant in Chinese and their comments also seemed to occur more frequently when interpreting from English to Chinese, suggesting anticipation may be either more conscious when interpreting from a non-dominant language or not as frequently used when interpreting into a non-dominant language because of an overload of cognitive capacities. Moreover, in their comments, anticipation was often represented as a general strategy they use during their interpreting, not just a strategy they used for a specific problem that was present in this instance of interpreting.

**Visualization.** Like anticipation, visualization was also talked about as a general strategy these participants often used in their interpreting. Many mentioned they saw a "picture" or an "image" for a particular passage in the source speech and interpreted the speech according to their mental images without remembering the exact wording of that passage. One participant added that she especially tended to use this strategy when dealing with difficult passages.

> *When he said "seeing so many young faces…" I knew what he was talking about in general, what the picture looked like. I didn't follow every word and I didn't remember every word. I just expressed the meaning. (Interpreter N, CHEN_V_fast)*

However, the strategy of visualization can be misleading sometimes. For example, Interpreter M interpreted the enumeration of problems in the original passage from BUSH_V: "…men, women, and children facing hunger, homelessness, illness, addiction, or despair," as "illness, hunger, poverty and despair" based on his visualization:

*[R: "poverty"?] I didn't really catch every word here. The message came in and became a picture. I was interpreting the picture…I saw homeless people and deserted streets. I was retrieving some words from the image of homeless people. (Interpreter M, BUSH_V_slow)*

**Selection of important messages.** Selecting segments they perceived as more important for interpreting was a common strategy used by the participants, as illustrated by the following example:

*This was a political, ideological [statement]. I needed to put more efforts in coming up with a good way to express it. So I didn't really keep listening to what followed…I wanted to use the exact tone that could represent his ideology. (Interpreter M, CHEN_E_slow)*

One application of this strategy was on passages the participants regarded as redundant. For example, Interpreter V interpreted "National Youth Council of the Executive Yuan" in the original passage from CHEN_V only as "National Youth Council":

*[R: you only said "National Youth Council"] There was no need to add "the Executive Yuan". There is only one "National Youth Council." (Interpreter V, CHEN_V_slow)*

Selecting the more important ideas was a strategy especially important when the participants were under time pressure:

*I heard the part about "75 million," but I didn't want to leave out "this investment will only go…." I felt it was more important. I was slow in numbers. I*

*knew I would not be able to say everything so I gave up [the number part]. (Interpreter J, BUSH_E_fast)*

As illustrated by Interpreter J's comment, during the selection of important messages, the participants may also take their personal strengths and weaknesses into consideration. As can be seen throughout this section describing the participants' strategy use, this tendency to forgo what one considers as too difficult and to keep what one considers as easier, or "safer" is reflected in the participants' strategy use in general.

**Omission.** Selection of important messages naturally entails omission of others. However, omission itself seems to have been an even more important strategy for the participants. The participants used omission to address a wide range of perception, comprehension, or production problems, as illustrated by the following comments:

*I heard "accountability," I knew what it meant, but I couldn't express it in Chinese. (Interpreter K, BUSH_V_slow)*

*I didn't know how to express them ["local control, high standard, accountability]. I was not familiar with [the No Child Left Behind] act. It was safer to interpret the following segment about "produce better results." (Interpreter V, BUSH_E_slow)*

*I heard the numbers but I was not sure which one was for public university and which one was for private university. I didn't want to mix them up so I didn't say it. (Interpreter S, CHEN_E_fast)*

Sometimes, the participants intentionally omit a segment of the speech that they had no problem understanding or producing, in an effort to maintain a natural and coherent speech in their mind, as illustrated by the following examples:

*When I heard "the guardian angels that…peaceful and more progressive," I thought of the term "guardian angels", but then I felt using that term would be an exaggeration. (Interpreter P, CHEN_V_slow)*

**Generalization.** Replacing the specific words used in the original text with a more general usage was also used by the participants for a variety of purposes. The most obvious reason was to overcome problems of lexical gap, as illustrated by the following two examples:

*I tried to come up with the term for [nursing home], but I couldn't. So I gave up [and used "different charitable organizations"]. (Interpreter V, CHEN_V_slow)*

*I didn't know how to say [go back to the old path], so I said [go back to] the old system. (Interpreter A, CHEN_E_fast)*

It should be noted that the problems of finding the appropriate words could be caused either by the existence of an actual lexical gap or just by the difficulty of retrieving appropriate lexicon from memory immediately under time pressure, and hence can occur in both directions. For example, as in the example for Interpreter M given earlier, Interpreter A also experienced difficulty when interpreting the passage from BUSH_V: *"hunger, homelessness, illness, addiction, or despair."* She interpreted the enumeration of terms as *"hunger, homelessness, illness or other problems"* and commented on her thought during that moment:

*When I heard "hunger," I thought he would then say "poverty" but he didn't. I heard addiction but I couldn't think of a way to translate it. So I used "or*

*other problems" to cover both "addiction" and "despair." (Interpreter A, BUSH_V_slow)*

**Creative interpretation.** Creative interpretation was another strategy the participants used, often in response to a perception problem. As illustrated in the following examples, when the participants "made up" something because they had not heard a particular segment clearly, they often made use of the context of the source speech and said something that was neutral enough so as not to deviate too much from the source speech.

*I heard the emergence of something, and I was thinking if that something was related to global competition. I knew it should be something related to the previous segment but I didn't hear what it was clearly. So I solved the problem with "[global competition] and its effects." (Interpreter S, CHEN_E_fast)*

*I didn't hear [to the elderly neighbor or a shut-in], but I knew there was something. So I said "people in need." It's safer. (Interpreter V, BUSH_V_fast)*

*I heard the part about training twenty thousand students but I didn't hear clearly the number of students that were sacrificed. I was not sure if it was one hundred thousand, so I said "five times as many". This way it would be harder for the audience to catch my mistake. (Interpreter M, CHEN_E_slow)*

Sometimes, staying ambiguous was another goal the participants wanted to achieve through creative interpreting:

*I was not sure whether it was millions of American who appreciate the American soldier or there were millions of American solders. So I used "we" [as subject of this sentence.] (Interpreter N, BUSH_V)*

**Transformation and paraphrasing.** Translation problems caused by interlinguistic and intercultural differences between the source and target texts often required the participants to resort to transformation of the source texts or to use paraphrasing. This strategy was especially common in interpreting BUSH_V where the participants found more references related to American culture and felt they needed to adapt the passage for their audience:

**ST:** On thanksgiving we acknowledge that all of these things, and life itself, come not from the hand of man, but from Almighty God. (BUSH_V)

**TT:** 我們也知道我們的一切，我們所得的，並非單純來自於人，而是來自於上帝 (We also know that everything we have, everything we have achieved, is not purely from man, but from God.) (Interpreter P, BUSH_V_slow)

> *I remembered I said "not purely from man" here. "Not from the hand of man" [in the source text] sounds perfectly natural for a Christian…if I say "it was not from man but from God," I felt…I don't know, maybe I assumed a different audience here. If it was a pastor preaching, it should be fine. But it was odd for a secular audience.*

**ST:** We have held our family and our friends closer, spending more time together, and letting them know we love them.

**TT:** 我們跟家人朋友更密切，花更多的時間在一起，讓他們知道彼此的關心 (We are closer with our family and friends, spending more time together, and letting them know we care about them.) (Interpreter A, BUSH_V_slow)

*I was thinking about how to translate "love." [R: Why?] Because it would be odd if I said "letting them know we love them" … "letting them know we love them" would be too colloquial for a presidential speech…and people have different definition for "love." "Love" [in Chinese] is usually between man and woman. "Care" has a bigger range.*

Abstract concepts such as love, compassion, or blessing in BUSH_V seemed to be especially troublesome for the participants, as illustrated in the following comment from Interpreter H, who chose to abandon a message instead of transforming it. It should be noted that the factor of time may also have played a role in her approach to the passage, as she was interpreting the speech at the fast speed.

**ST:** We are grateful for the freedoms we enjoy, grateful for the loved ones who give meaning to our lives, and grateful for the many gifts of this prosperous land.

**TT:** 我們對於我們的自由感恩，對於我們的親人感恩，對於我們國家的一些祝福也感恩 (We are grateful for our freedom, grateful for our family members, and grateful for the blessings of our country.) (Interpreter H, BUSH_V_fast)

*"Many gifts in…" I just say whatever came to mind. It's really annoying. How do I say this! [R: How about giving meaning to our life?] I don't know how to say it. Many expressions work in English but when you turn them into Chinese, they sound so sickening. You wouldn't say to your family "you give meaning to my life". Somehow it doesn't work in Chinese. So, I did hear it. But I intentionally omit it because I felt it was odd in Chinese. (Interpreter H)*

The need for transformation was also common in Chinese to English interpreting. Similar to the English speeches, examples for transformation were more common in the volunteerism speech than in the education speech, suggesting that the problems of interlingual or intercultural differences may occur more often for abstract topics. However, the rhetorical pattern in Chinese seemed to give the participants more problems even in the Chinese EDUCATION speech, as illustrated by the following example:

**ST:** 今天好不容易讓教育的工作回歸教育的本質，我們絕對不可以再走回頭路，一定要讓政治的歸政治、教育的歸教育 (Today, we have finally free education from political influence [Literal translation: …let the work of education return to the nature of education]. We should never go back to the old path. Let's make sure that politics remain politics and education remains education.)

**TT:** But today I try to make sure that education is conducted in its right perspective and education should be divorced from non-educational concerns. (Interpreter P, CHEN_E_slow)

> *"Politics remain politics and education remains education" was so localized. [R: did you find it hard?] I felt it was a localized, a very Taiwanese expression. To translate it, you need to explain it…[R: You seemed to explain it here] Yes, but I didn't say "education should not be politicized." What does that mean? It will be as if I didn't translate it because there will be too much background left unexplained.*

**TT:** So we shouldn't revert back to the old practices. We need to make sure we respect education as a profession. (Interpreter V, CHEN_E_fast)

*"Politics remain politics and education remains education." It means to respect education as a profession. I was trying to interpret the spirit [of the passage]. [R: Did you hesitate when you heard it?] Yes, I was thinking what he was trying to say.*

Although many fewer than for BUSH_V, there were also examples in BUSH_E that showed the participants' concern for the audience's background, as demonstrated in Interpreter M's comment about the following passage:

**ST:** Government cannot and must not try to run the nation's schools from Washington, D.C.

**TT:** 政府不可以，從那麼中央政府來干涉學校的運作 (The government cannot interfere the operation of schools from [filled pause] the central government.) (Interpreter M, BUSH_E_fast)

*[R: Central government?] I wanted to express its real meaning. The concept of federal government and state government was different from our system. I tried to make it more understandable [for the audience] by converting it to our system.*

However, not all participants agreed on the appropriateness of all the moves to "adapt" for the audience, as illustrated by the following example, in which Interpreter P translated the federal government also as central government, but did not do it consciously.

**ST:** Yet, the federal government has an important role.

**TT:** 但是中央政府還是有一個很重要的角色 (But the central government still has a very important role.)

*I translated federal government as central government. Then I thought, oh, never mind. [R: You didn't do it on purpose?] No, when the term came up again later in the speech, I corrected it to federal government. (Interpreter P, BUSH_E_fast)*

***Effects of Experience on Strategy Use***

There were many comments about strategy use that started with "Experience told me…, " suggesting their strategy use had changed and become ingrained with their experience.

*Experience told me I was not going to be able to translate everything, I had to give a summary. (Interpreter H, CHEN_V_fast)*

*Experience told me having a long lag is not conductive [to interpreting in either direction.](Interpreter A, BUSH_E_fast)*

*According to my experience, when I use the fragments I get and link them into a coherent story, it usually turns out to be quite close to what the source speech was about. [The audience] will not feel I have been making up my own story. It will sound more like I have digested the content of the source speech and express it in my own words. (Interpreter M, CHEN_E_slow)*

*My past experience told me if I translated things literally, it would sound really odd in English. (Interpreter P, CHEN_V_fast)*

## Self-Monitoring

Self-monitoring, the second main theme that emerged from the data, was an on-going activity throughout the participants' interpreting process, including their comprehension, production, and memory. As it was an on-going process that seemed to be aimed at enhancing the overall quality of the interpreting products instead of addressing specific problems, it can be regarded as an integral part of the process of SI (Gerver, 1971), or a global strategy the participants used to cope with the demands of the SI task. In the following, I describe some of the salient categories in the participants' self-monitoring activities. It can be seen from their comments that not only were they being "strategic" in their self-monitoring activities, but their monitoring often had further strategic implications for their interpreting as well.

### *Awareness of Errors and Missed Information*

All participants reported knowing they missed some information or made some errors here and there. For example, Interpreter V was aware of the meaning error he had just made when he realized an inference he made in interpreting the previous passage was contradicted by the next passage of the original text.

> *I said "in the world" here. I don't know why, but somehow I felt he was talking about people around the world. Then I realized he was only talking about people in the United States. When I heard "they are fellow Americans," I realized I had made a mistake. (Interpreter V, BUSH_V)*

In the case of finding themselves making errors, except for errors they felt would significantly impact the meaning of the speech, most participants did not proceed to

correct the errors as they considered such corrections would likely make their overall performance worse, as illustrated by the following example from Interpreter P.

> *I realized I made an error…but I didn't want to correct it. It would only make things worse and the error was not that serious. (Interpreter P, CHEN_V_fast)*

As illustrated by the following comment from Interpreter S, the participants' awareness of what they had missed or interpreted wrong also influenced their approach to the upcoming text:

> *I didn't hear what the interest rates were for. I heard [all the numbers]. I remember I was about to write them down. But I knew I didn't hear the category. It would be useless to write down the numbers. (Interpreter S, CHEN_E)*

Examples demonstrating how the participants' monitoring of their own performance affected their strategy use can also be observed in the following description of the participants' self-evaluation of performance.

***Self-evaluation of Performance***

The participants seemed to be carefully monitoring their overall performance by assessing how they had been doing so far in their interpreting performance. Some participants reported consciously shifting their approach to the source text in response to their self-evaluation. For example, Interpreter M indicated he started to change his overall production strategy after finding it hard to concentrate in the first few minutes and being unable to come up with several terms:

*I realized it was not possible to interpret everything. It would be better to use summarizing. So I started to lengthen the lag between the original speech and my interpreting and focused on summarizing what I heard. I felt it was working. (Interpreter M, CHEN_E_slow)*

Interpreter R and Interpreter V had also observed some problems in their interpreting before they decided to change their strategies to improve their performance:

*From this paragraph, I decided to listen for more before starting interpret. [R: Why?] I felt I have not been doing well. I followed the speaker too closely and I had problems finishing my interpreting the way the sentences turned out to be. Interpreter R, CHEN_V_slow)*

*I was having problems with terms today. So I didn't want to translate [the enumeration of terms] here one by one. If I did, that would only affect the upcoming segments negatively. (Interpreter V, BUSH_V_fast)*

***Emotional Response***

Emotional responses to one's own performance were commonly observed in this study for some participants. It often occurred when the participants were not satisfied with their own performance or worried about the consequences of their interpreting, as illustrated by the following examples:

*I was not happy with my translation of "renew," but I couldn't think of a better word. I was worried that my usage would sound odd. (Interpreter P, BUSH_V_slow).*

*I regretted immediately after I said [the vitality of young people flow easily]. It was awkward. I was influenced by the Chinese. I should have said "young people are full of vitality." (Interpreter H, CHEN_V)*

*I heard myself say "three core values" and I regretted it. I was worried about not being able to translate all three. (Interpreter R, CHEN_E)*

Sometimes a participant's emotional response became so strong that the interpreting performance was affected negatively, as illustrated in the following example from Interpreter M:

*I found myself not being able to translate this sentence. I slowed down here and I tried several times to translate it but I still couldn't. I understood what he meant but I couldn't express it….I was frustrated but I still wanted to translate it. So I didn't really hear clearly what the [following segments] was about because I was frustrated over my inability to translate this sentence. (Interpreter M, BUSH_V)*

*I made a mistake here. I shouldn't have said "digital divide." [I think I did it] because I've interpreted too many conferences addressing the digital divide issue recently…I was frustrated over the mistake, so I didn't get to translate the second half of that sentence. (Interpreter H, CHEN_E)*

Negative feelings toward the speaker or the source speech were also common, especially toward the Chinese source speeches, as shown by the following example from Interpreter R:

*Here I became critical of his speech. What were the connections between "vitality, hope, and progress" and [the previous segment]. I thought about the*

*campaign slogan he used when he ran for [official position] sometime ago. Then I was thinking "vitality" was ok, but what had [the previous segment] to do with "progress." (Interpreter R, CHEN_V)*

It should be noted that the emotional response toward the source speech or speaker can also been viewed as a by-product of the participant's searching for coherence in the source speech. When the participants could not find the connections between passages right away, they often got frustrated. But the frustration itself often served as a way to push them to seek out the link, as Interpreter R in the above example, who later decided to translate the term "progress" as "the spirit of reform," which he deemed more reasonable in this context.

**Concerns about Language Use**

Participants often tested for acceptability of their language before production. This test for acceptability occurred in both directions. However, there seemed to be some differences between their standard for acceptability of languages in different directions as illustrated by the following two sub-categories about their lexical choices and overall interpreting style:

***Concerns about Lexical Choices***

Many participants sought to use four-character set phrases in Chinese when interpreting from English to Chinese. For example, quite a few participants used some four-character set phrases in their interpreting of the following sentence from BUSH_VOL:

**ST:** …men, women, and children facing hunger, homelessness, illness, addition, or despair.

**TT: …**有很多的兒童、婦女，面對著飢寒交迫、疾病 (Many children and women are suffering from hunger and cold, and illness.)(Interpreter N, BUSH_V_fast)

*It took me some effort to come up with the phrase "suffering from hunger and cold," so I missed despair and addiction.*

As can be seen from her comment, Interpreter N tried to interpret hunger and homelessness with a Chinese set phrase "suffering from hunger and cold." Similarly, Interpreter A also used a collocational appropriate phrase in her interpreting of this segment, though her use of the phrase led to an interpreting that some might consider as an addition to the original sentence:

**TT:** 男男女女、老幼，都面對著飢餓、無家可歸、疾病、或者其他的問題 (men, women, old people and children, are all facing hunger, homelessness, illness or other problems.) (Interpreter A, BUSH_V_slow)

*[R: why did you say old people and children?] Because I just said men and women, it's odd just to say children. I also felt I heard "elderly."*

It should be noted that "men, women, old people and children" is also a four-character phrase in Chinese that refers to all people regardless of age and sex.

It is interesting to contrast the comments from Interpreter N and Interpreter A with comments from Interpreter S, who reported being dominant in English and who also thought of a four-character phrase for this segment:

**TT:** …許多的男男女女、小孩，他們都要面臨飢荒、失望，種種的問題 (Many men, women, children, they all have to face famine, disappointment and various kinds of problems.) (Interpreter S, Bush_V_slow)

*I thought of the phrase "homeless and wondering from place to place," but I was not sure if it was appropriate to use the phrase here, so I didn't say it.*

Note that this phrase was actually quite appropriate here and was used in Interpreter V's interpreting. In contrast with interpreting from Chinese to English, Interpreter S seemed to be more confident in her choice of English words, as illustrated in the following example:

**ST:** 青年是國家重要的資產，也是使世界更美好的動能 (Youth are an important asset for a nation and also the momentum to create a better world.)

**TT:** It is also a very important engine of gro.. of development in a country.

*I thought of using "driving force," but I wanted to use a different word. So I said "engine of growth" but then I realized it should be "engine of development." (Interpreter S, CHEN_V_slow)*

Though Interpreter S was also quite particular about her word choices in Chinese, as she remarked during one retrospective interview, she felt she had more cognitive resources left to search for different words when interpreting into English because she was more familiar with English. As the results described above indicated, the participants seemed to set a higher standard for their word choices and hence to pay more attention to collocation of words when they interpreted into their dominant language.

Similar examples were found in Chinese to English interpreting when the participants were faced with the problems of interpreting some four-character set phrases or other idioms into English. For example, the following passage from CHEN_V, which contains two Chinese idioms that are often used as metaphors to praise the capability of the younger generation over the older generation, was commented on by most participants:

**ST:** 長江後浪推前浪，青出於藍更勝於藍，青年所展現出來的能力和創意往往是意想不到的 (The new generation often outperform the older generation. [Literal translation: As in the Yangtze River, the waves behind drive on those before. Blue is extracted from the indigo. ] The ability and creativity of young people often exceed our expectations.)

**TT:** The youth should perform better than us. The youth give us great creativity and abilities. (Interpreter A, CHEN_V_slow)

> *I didn't know how to translate it. [For "In the Yangtze River, the waves behind drive on those before"], it is so abstract. Unless one has heard it before.. I couldn't think of any way [to translate it] here. [As for "Blue is extracted from the indigo,"], I couldn't say "green is better than blue."*

As Interpreter A, most participants chose to translate the meaning of the two Chinese idioms, though many did not initiate any comment about these idioms. It should be noted that all participants who translated this passage treated the two idioms as one and gave only one meaning-based translation. The following is an example from Interpreter N:

**TT:** Young people will become even more capable compared to our generations. (Interpreter N, CHEN_V_fast)

> *I heard [the sentence about the youth is the momentum to create a better world], then "in the Yangtze River…", I felt it was too complicated. [R: You mean you find the"Yangze River…" difficult?] I understood its meaning. It was about being better. [R: Did you ever think about any thing you heard before?] No, according to my experience, it won't work. [R: You had tried before and failed?] Yes, when it comes to [Chinese idioms], unless you know how to say it is very important, you should just give the meaning of it. [R: When is it important?] When the discussion focuses on the idiom and there will be follow-up on the idiom. At that time, it would be dangerous if you don't translate it literally. But here it was only used to describe [something], not used as a key allusion.*

It can be noted that Interpreter N seemed to have developed a general approach to Chinese idioms from her experience. The effect of experience was also reflected in the following comment from Interpreter R, who chose to abandon part of the passage about idioms altogether.

> *I heard these two sentences and I decided to give them up. I didn't even try to think about how to translate them [R: why?] If I tried to come up with a translation, I don't think it will be a pretty one. If the translation is going to be awkward, I'd rather not to translate it at all. [R: how about paraphrasing?] Unless I had translated the same thing before, I think it's better not to spend time on it. Because according to my experience, if I try really hard to translate it, first*

*I will lag too much behind the speaker, second I will not be satisfied with my translation anyway. (Interpreter R, CHEN_V_slow)*

Although the participants may have dealt with English idioms or metaphors in the same way as they dealt with the Chinese idioms here, the use of idioms or metaphors with classic Chinese allusion is much more common in formal Chinese speeches. This rhetorical feature of Chinese may have made the interpreters more familiar with the "effective" approach for dealing with Chinese idioms and four-character set phrases, as illustrated by the following comment again from Interpreter N:

*When I first started working as an interpreter, things like [classical Chinese] were a major barrier to me. But after a while, I realized they were no big deal and I just needed to express their meaning. If I concentrated too much on giving a perfect or precise translation, it would only hurt my overall performance. (Interpreter N, CHEN_E)*

Interestingly, while all Chinese-dominant participants decided right away not to seek equivalent expressions but only to give a meaning-based translation when it came to Chinese idioms or four-character set-phrases, the English-dominant participants sometimes did engage in the search for equivalent expressions in their interpreting processes, though not always successfully. For example, Interpreter P mentioned her effort to search for an equivalent expression when she heard the set phrase "to adapt teaching to students' abilities" from CHEN_EDU:

**SS:** 多元開放簡單地說就是要因材施教，不要只用一把尺來衡量所有學生 (Diversity and openness, simply put, means to adapt teaching to students' abilities. Students should not be measured with the same standards.)

**TT:** In terms of openness, we try to give each and every student what they need, instead of using just one yardstick for all.

> *I knew there was something in English, but I couldn't remember. [R: you had tried to come up with a phrase?] Yes, it was something that starts with "to each." There was a slogan they used in American education. (Interpreter P, CHEN_E_slow)*

***Concerns about Style***

A few comments on the monitoring of one's interpreting style were noted in the participants' retrospection. Although the occurrence of this type of comments was less common among the participants, it is presented here because of its potential implication for interpreting from different directions.

What was interesting about these comments is that the participants only made such comments when interpreting into their A language. The first two examples were from participants dominant in Chinese:

> *I wanted to maintain the style and pace I had already established at the beginning [of the speech]. Because I felt this speech was easy to handle, I wanted to be consistent in my style. I didn't want the audience to feel I was suddenly rushing through in the middle. The speech was slow and it was not difficult. If I*

*lagged behind too much in some places, I could always catch up in some way. (Interpreter M, BUSH_V_slow)*

*When I heard "however small it may be," I thought about this [Chinese idiom]. But I was not sure if I should say it. I was reluctant to use it. [R: why?] Because I had been using a colloquial style so far in my interpreting and this is a literal usage. If I used it, it may make the rest of the [interpreted text] sound sloppy, even though I felt this [idiom] was very appropriate here. [R: but you decided to use it?] Now that I had come up with a good translation, I might just as well say it. (Interpreter R, BUSH_V_slow)*

The following were two examples from participants dominant in English:

*[The participant used "me and my colleagues" instead of "me and many other political leaders" as used in the source text. R: me and my colleagues?] It's clearer this way. I thought of using "me and many political figures" but I felt it would sound odd here…the whole [speech] was supposed to be friendly and personal, at least that's how I had been translating it. (Interpreter P, CHEN_V_fast)*

*[When the researcher pointed out the participant had used the pronoun "you" to replace all references to "youth" in the last paragraph] I felt he was talking to [the audience] so I should use "you"…otherwise the strength of the message wouldn't be the same. What counts is to communicate, not the words…sometimes I felt [President Chen's] speech was so indirect and impersonal, I wanted to "fix" it a little bit. (Interpreter H, CHEN_V_fast)*

***Gap between A Language and B Language Proficiency***

In addition to their mostly indirect references to the gap between their language proficiency in both languages, many participants also pointed out the role of language proficiency when talking about their general experience of interpreting in different directions during the final interview. For example, they noted that they were more flexible and resourceful in producing their A language than B language, and hence often felt more pressed when interpreting into their B language.

> *I am under more pressure when interpreting into English. I have to pay attention to sentence structure and word choices. When interpreting from English to Chinese, I have more flexibility. (Interpreter A)*
>
> *I am more relaxed when interpreting into English. I have more energy left for coming up with more elegant expressions. I am more anxious when interpreting into Chinese, especially for speeches that I feel require more flowery expressions. (Interpreter P)*

This awareness of the gap between their A and B languages, especially in terms of producing B language, seems to affect their strategy use in different language directions, as illustrated by the following comments:

> *So even though I hear and understand a message well, when I am not sure if I can express it well, I'd rather give it up. I don't want to embarrass myself. (Interpreter R)*
>
> *I don't have to spend too much effort on comprehending Chinese so I can wait longer and store more messages in my memory. And I know what will come next will not be difficult to comprehend. (Interpreter N)*

*When working from English to Chinese, I try not to use phrases that I am not familiar with. For example, there are some four-character [Chinese] idioms that I may use in my daily life, even when I am not sure if they are appropriate. But when interpreting, I try to avoid using them. (Interpreter P)*

However, when asked specifically if interpreting into their B language was more difficult for them, many participants mentioned the possibility of not comprehending the source speech correctly when interpreting from B to A and qualified their comparison between interpreting in different directions by saying it was the topic that mattered most, not the language direction.

**Self-constructed Norms**

Self-constructed norms, the last theme I present here, are a particularly interesting category that emerged from this study. During the retrospective interviews, all participants referred at some point to principles derived from their work experience that guide their decision-making in interpreting. Many of these principles were again reiterated during the final interview when they were asked to go beyond this study and compare in general their experience of interpreting from Chinese to English and from English to Chinese. The principles raised were similar across participants, forming "norms" that seem to govern the interpreting behaviors of this group of professional interpreters.

***Norms about Interpreting Processes and Products***

Many participants talked about how they changed their approach to interpreting as they grew from a novice to a professional interpreter, usually after I asked if they remembered how they had dealt with a specific segment in the source speech. As illustrated by the following comments, they seemed to focus more and more on their audience as their interpreting experience increased. One of the results of this shift of focus seems to be that, as they became more experienced, they felt they were freer to select the important part of the speech and leave out some other less important parts. Interestingly, most of the comments occurred in their retrospection for interpreting from Chinese to English.

> *In the past, I felt every message was important and I should try to translate all of them. But later, I realized it didn't work that way in simultaneous interpreting. Now I give myself more leeway in discarding stuff. I am more flexible now. (Interpreter N, CHEN_E_slow)*
>
> *Increasingly, I started to feel that what I should keep in mind was who the audience was and what they wanted to get from [the speech], not how well I could translate those words as a translator. (Interpreter R, CHEN_V_slow)*
>
> *I later realized interpreting was about communicating with the audience. What really matters is not how many words you are able to translate. It is how much the audience understands that counts. (Interpreter A, CHEN_V_slow)*

In addition, interestingly, almost all participants mentioned about the ending of the speeches and how the ending affects their allocation of efforts.

*I sensed that the speech was coming to an end. I had to express what he said quickly and clearly. So I made an effort to conclude the speech…when it comes to the last sentence I make an extra effort to translate it well. It would be really bad if you don't finish a speech well. (Interpreter J, BUSH_E_slow)*

*I didn't have time to [translate this segment], and I also sensed that the speech was coming to an end. I had to end with the speaker at the same time, so I speeded up here. (Interpreter H, CHEN_E_slow)*

*I pay more attention to my word choice at the beginning and ending of a speech; especially the ending, I try to make it sound better. (Interpreter P, CHEN_V_fast)*

As illustrated by the above comments, their goal was to finish their interpreting at the same time as the speaker and to finish it well, a goal which also made them more likely to omit the segment right before the ending of the speech.

***Beliefs about the Two Languages and their Typical Speakers***

Despite the different problems caused by their language proficiency described earlier, all participants were in accord in their comments about the difficulty of interpreting from Chinese to English. For example, they reported more experience with "bad speakers" of Chinese texts whose speeches were disorganized and lacked logical connections.

*The English speakers we had usually were experienced speakers. They were used to delivering speeches on certain topics. So their performance was generally ok. The Chinese speakers we had, on the other hand, were often*

*politicians or government officials. They were full of rhetoric but no substance. They may not understand the topic of the conference and they didn't write their own speeches. (Interpreter R)*

Many participants specifically mentioned the challenge of interpreting from Chinese to English during the Question and Answer sections, during which they had to consciously process the disorganized comments from the audience and produce a coherent English interpretation that can "make the English listeners understand the questions even better than the Chinese listeners." (Interpreter N)

*During the Q&A session, when an [English speaker] say something, I know what he has in mind even when he has only uttered his second sentence. But it is different for the Chinese audience. A Chinese guy may first talk about whom he met during the last conference and then go on to talk about…It is not only me. My interpreting partner has the same problem too. We often didn't understand what their questions were about! (Interpreter A)*

According to the participants, the "bad Chinese speaker" problem was often intertwined with characteristic of the Chinese language, including omissions of subjects, loose use of connectives, and the rich meaning encoded in some Chinese usage, as summed up in the following comments:

*You have to listen harder to the Chinese [source text]. Otherwise your English production will be a mess. Chinese is more loosely structured. You can't take some speakers' words literally. (Interpreter V)*

*Chinese is more concise. You need more words to express the same thing in English. And Chinese is a high-context language; so many things can be left*

*unsaid; you have to insert subjects yourself; many connectives cannot be taken literally. There are so many grey areas that make comprehension more effortful. And then you have to turn an amorphous, poetic [Chinese] language to a structural, linear [English] language. And you need to use more words. So you are certainly under more time pressure. (Interpreter H)*

In other words, regardless of their English proficiency, the participants were unanimous in their beliefs that one needs to spend more effort in understanding Chinese in order to interpret it into English.

## A MODEL

In this final section, I first present a model constructed from both the quantitative and qualitative data collected in this study. Following the presentation of the model, I provide two cases from the data to illustrate how the model operates. Bearing in mind the research questions for this study, I focus my discussion more on the factors involved in the issue of directionality in simultaneous interpreting.

### General Explanation of the Model

Figure 7 illustrates interpreters' experience of simultaneous interpreting and the various factors influencing their interpreting processes and products. The central phenomenon was labeled *simultaneous interpreting as a strategic action.* As displayed in Figure 7, the central circle represents an interpreter's cognitive as well as metacognitive activities during the task of simultaneous interpreting, which are continuously conditioned and constrained by three major factors contained in the rectangular box

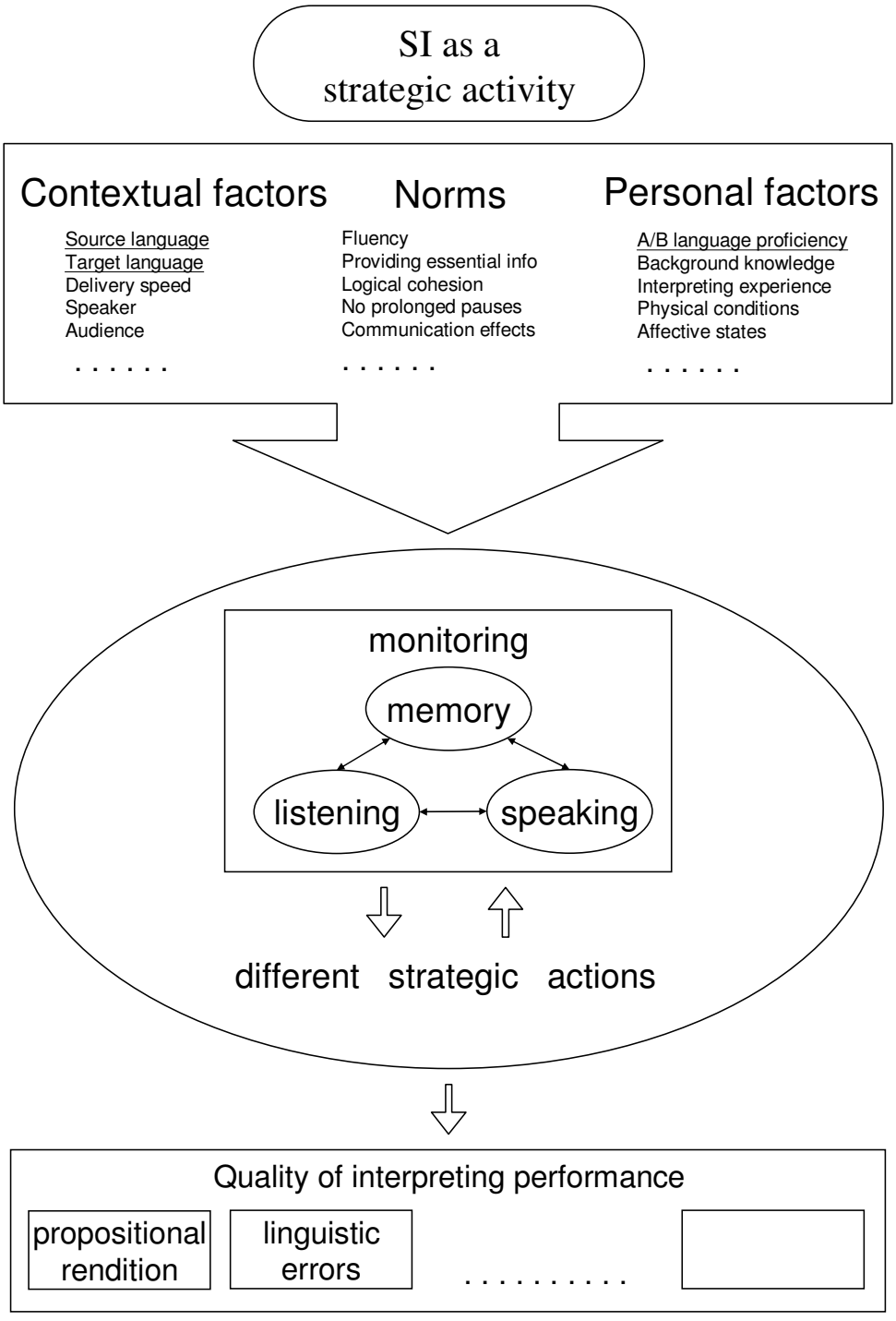


Figure 7. A model of the central phenomenon: SI as a strategic activity

above: the context of the interpreting, the interpreter's personal characteristics, and the norms jointly constructed by professional interpreters. Each of the three categories has a number of sub-factors listed under it. The factors most relevant to the issue of directionality in simultaneous interpreting are underlined.

The central phenomenon includes two major elements. The box in the top portion of the circle represents first the cognitive activities of concurrent listening to the source language and speaking in the target language, and their interaction with the interpreter's memory, which again are all inter-connected and affect each multiply and reciprocally. These cognitive activities are embedded in a metacognitive monitoring action that continuously oversees the overall processes of simultaneous interpreting.

Below this box of interpreting activities are the strategic actions the interpreter takes in response to the various problems that arise in the box of interpreting activities. The two arrows connecting these two components indicate the interactive nature between the interpreting activities and the strategic actions taken.

Consequence of the central phenomenon is the interpreter's interpreting performance, which is consisted of a great number of categories, including propositional rendition, linguistic features, presentation features, etc.

In the following, I explain each component of the model in more details.

## Conditions: Contextual Factors, Personal Factors, and Norms

### *Contextual factors*

Three main conditions continuously interacted with the central phenomenon. The first category of conditions, contextual factors, refers to the context of the interpreting task. Who are the players in this communicative event? Who is the speaker? Who is the audience? When and where is the conference held? These time, place, and people factors seemed to be especially important when interpreting from Chinese to English, as the artificial setting of the experiment appeared to affect interpreting in this direction more than in the other. For example, almost all participants recalled feeling hesitant for a moment when they heard the speaker in CHEN_EDU began the speech with a Chinese greeting, which can be literally translated as "hello, everyone," for not being able to decide whether to say "good morning" or "good afternoon." Moreover, in CHEN_VOL, most participants mentioned feeling uncertain about which pronouns to use for many of the Chinese null-subject sentences because of a lack of sufficient information about the composition of the audience.

Between the speaker and the audience, the interpreters seemed to put more attention to the audience. Many decision-making processes during the interpreting task were audience-oriented, including whether to make a cultural adaptation, or whether to interpret or leave out a segment from the original speech. Most comments about speakers concentrated on the problem of Chinese speakers in general being "bad speakers" and the stance and background knowledge about the speakers, the latter closely related to the personal factors I describe later in this sub-section.

Also included in the contextual factors are the characteristics of the source speech, such as its topic and information density, and its various temporal features, such as the speed of delivery and the various stages of the speech. Numbers are especially problematic for interpreters, as has already been indicated in many other studies. In both interpreting directions, interpreters made more errors and omissions when it came to numbers. The only number in CHEN_EDU that required conversion from western year into Republic of China year did not seem to cause too much problem for the interpreters. However, as the year referred to was the academic year of 2004, some interpreters reported thinking over if the academic year had started yet before deciding which tense to use in their interpreting from Chinese to English, as it was the only clear indicator of tense in that sentence.

As expected, speed of delivery exerted a strong influence in the participants' experience of the interpreting task. Interpreters tended to give more elaborated interpretation and make less omission for speeches delivered at a slower speed. Conversely, when interpreting speeches delivered at the faster speed, more use of omission, selection, and generalization was observed in the data.

The language in which the source speech was delivered, i.e. Chinese or English, appeared to be important to the interpreters' processing of information. As already exemplified above, Chinese and English require the interpreters' attention to different areas, both in terms of comprehension and production. Without exception, all participants in the study claimed they needed to "listen harder" for Chinese.

Particularly interesting among the contextual factors was how the stages of the source speech, i.e. the beginning, the middle, and the end of the speech, affected the

allocation of attention for the participants. Almost all participants recalled sensing that the speech was coming to an end and making a conscious effort to wrap up the interpreting so that they could "end the speech at the same time as the speaker" and also "end it well." To achieve their goal, they reported being more careful in their word choices and sentence structure and, if they lagged behind the speaker too much right before the ending, became more likely to omit a less important segment in order to catch up with the speaker.

***Personal Factors***

The second category of conditions, personal factors, refers to the personal characteristics of individual interpreters, including their language proficiency in the source and the target languages and their prior knowledge about the speaker, the topic of the speech, or the characteristics of the source and the target languages. Most participants had experience interpreting for the two speakers of the texts used in the study, though their interpreting for President Bush came only from interpreting on TV. However, because the speeches used in the study were not original speeches but rather speeches later recorded by two different readers, they reported their familiarity with the original speakers' voice and style of delivery was not helpful, and sometimes, even distracting to them.

The interpreters' Chinese and English proficiency played a vital role in the interpreting processes. Most participants reported being aware of their deficit in the B language and adopted a variety of strategies to compensate for problems caused by their language deficiency. For example, some interpreters reported avoiding expressions they

were not familiar with or not able to retrieve immediately from memory by using omission, generalization, or paraphrasing. Most interpreters also reported adjusting their lag during interpreting based on their confidence in their memory in either language.

Also included in the category of personal factors were the interpreters' physical condition at the time of the interpreting, affective states toward the source speech and speaker, past interpreting training and work experience, which interacted especially closely with the interpreters' monitoring activities that I describe later.

***Norms***

The third category of conditions influencing the central phenomenon, the norms of interpreting, includes the interpreters' ideas about what their interpreting products should be like and the appropriate strategies that can be employed to produce those products. The term *norm* was used here because this group of interpreters seemed to share similar ideas about the correct behaviors in simultaneous interpreting, and their decision-making in the interpreting process were very much guided by these ideas.

In terms of their interpreting products, the interpreters seemed to hold it important that their interpreting be fluent, understandable, without long pauses, and in complete sentences. They emphasized that their goal was to communicate the important message of the original text, not to translate every word. These goals had been internalized through their training and years of experience and manifested in every aspect of their decision-making during the interpreting process. For example, they used strategies such as anticipation or creative interpreting to achieve the goal of avoiding long pauses in their interpreting.

Guided by these product norms, the interpreters also seemed to have internalized a variety of "correct" strategies to help them produce the interpreting products. To ensure optimal overall performance, the interpreters were more inclined to use generalization or summarization of an entire passage instead of paraphrasing of individual terms. The language norms of the source and the target languages also affect the interpreters' comprehension and production processes. When interpreting from Chinese to English, most interpreters reported paying more attention to grammar, sentence structures, and logical links between passages. They also deemed it important to go beyond the surface of the original Chinese speech and to express both the explicit and implicit messages obtained in the text. When interpreting from English to Chinese, on the other hand, more attention seemed to be put on making cultural adaptations.

**Listening, Speaking, and Memory**

In the model, I show listening, speaking, and memory as an inter-connected activity. In terms of listening, interpreters used both top-down and bottom-up strategies similar to what they would use for any type of discourse comprehension. However, to compensate for the disadvantage of having to attend to the source speech and produce the target speech at the same time, the interpreters appeared to use certain top-down strategies such as anticipation, visualization, or inferencing, more extensively.

The demand of concurrent listening and speaking also resulted in more perception problems in SI than in other listening activities. As reported by the participants, most perception problems occurred when they devoted too much attention to interpreting the previous segments, either because there were certain terms that required more retrieval

effort or when the sentence they produced was particularly complicated. This interaction between listening and producing efforts in the SI seemed to cancel the advantage of listening to one's A language in A to B interpreting, as the extra effort often needed for producing B also took away the interpreters' cognitive resources for listening and hence created almost as much perception problems as when listening to B.

The connection between listening and speaking also demanded that the interpreters resort to a variety of strategies to compensate for problems coming from listening, such as creative interpreting and generalization. When the comprehension element of the interpreting was completely successful, the interpreters could also face the problems of production under time pressure that demanded the use of a variety of strategies, such as generalization, transformation, or summarization. Making inferences appeared to be a strategy especially important for interpreting from Chinese to English, which many participants described as "many words left unsaid" and sometimes "illogical." For interpreters with English as their B language, the extra effort made to analyze the underlying meaning in the Chinese passages also appeared as a strategy used to counter the difficulty for a more word-based interpreting that might require vocabulary not easily available to them or usage they were not sure would work in English.

Memory was an essential aspect of the interpreting processes. During the interpreting, many participants took notes on the summary page provided to help them remember numbers. Some participants also doodled on the page some key words they heard, possibly to help their concentration or retrieval of terms. The interpreters' confidence in their memory in their A and B languages also appeared to affect their interpreting, as some participants reported their confidence about their memory in their A

language affected the length of lag between the source and the target language that they felt comfortable with.

While the participants' direct references to memory were often limited to storing information for later retrieval, which is closer to the concept of *short-term memory*, their retrospective data were teeming with indirect referents to their understanding of the concept of *working memory*. They were well aware of the limited capacity of their cognitive resources for the SI task and recognized that trade-off must be made under adverse conditions. This awareness seemed to facilitate a more efficient use of their working memory by forcing them to engage in constant decision-making and selection of important information to achieve an optimal allocation of cognitive resources for their listening and speaking processing (Liu, Schallert, & Carroll, 2004). Moreover, their knowledge about their own cognitive strengths and weaknesses, such as their A and B language skills, prior knowledge about the topic and speaker, or processing speed for numbers, also helped them develop interpreting strategies to maximize their strengths and compensate for their weaknesses (Moser-Mercer, 2000/01).

**Monitoring**

Most interpreters reported engaging in active monitoring of their performance. They were aware of the omissions or errors they made and were able to adjust their consequent interpreting to keep the overall interpreted text coherent accordingly. When they detected that their concentration levels were waning or the strategies they had been using were not working well, they were able to adjust to improve their performance.

Some participants also recalled their shifts of attention between listening and speaking during the interpreting.

Monitoring of one's interpreting processes seemed to be an important mechanism connecting the interpreters' cognitive activities with the various strategies available to them. Whenever a problem was detected in the cognitive processes during monitoring, appropriate strategies were employed to address these problems. The choice of particular strategy or a combination of strategies was often made on the basis of the interpreters' past experience and the product and productions norms they had internalized.

The act of monitoring one's performance inevitably led to emotional responses from the interpreters. Many participants reported frustration over their particular choices of words or overall performance. This feeling of frustration could sometimes affect their consequent performance negatively. However, most of the interpreters reported that their feeling of frustration was only temporary as they regarded a less than satisfactory word choices a fact of life for simultaneous interpreting. Emotional responses toward the speaker/speech were also common during the interpreting. Interestingly, most strong emotional responses were reported by male interpreters.

**Consequence**

In the model, the consequence of the phenomenon, the interpreting performance, is represented by a large box that encompasses a great number of categories, reflecting the complexity involved in assessing interpreting quality. As this study only dealt with propositional rendition, linguistic features, and presentation features, I focus my discussion on these three categories and how the effects of the dynamic interaction of the

interpreting processes and the strategic actions were reflected in these three categories. As demonstrated in the above description of the model, one consequence of the central phenomenon was the product of both the interpreter's cognitive and metacognitive activities, as many decisions an interpreter made during the interpreting were both cognitive-based and norm-based.

***Propositional Rendition***

Propositional rendition refers to the production of identical or similar propositions, added proposition, or erroneous propositions in the interpreted text, as well as the propositions that were in the original text but were omitted in the interpreted text. Producing propositions that were identical to the propositions represented in the original text often required a combination of both the availability of the interpreters' cognitive resources and the existence of obvious equivalents between the source and the target passage. A shortage of either of these conditions was likely to result in a proposition that was only similar to the original proposition. Sometimes, the decision to produce a similar proposition was made consciously in consideration of the audience's background. For example, some participants adjusted their interpreting for cultural references in the BUSH_VOL speech to such concepts as love or God. Other times, the decision was made as a compromise such as resorting to generalization when one could not come up with a ready equivalent at the moment. In general, the participants seemed to produce more similar propositions when interpreting from Chinese to English, especially for participants with English as a B language. In terms of identical and similar propositions

combined, the participants tended to produce fewer such propositions when interpreting into their B language.

Omitted propositions can be a result of a perception, comprehension problem, or production problem, or a norm-based decision. Some norm-based decisions included omitting a less important or redundant segment when one was under time pressure, omitting a less important or redundant segment simply to conserve energy, omitting a segment, important or not, that may be incoherent with one's previous interpreting, or omitting a segment, important or not, that may expose one's linguistic deficiency.

Added propositions and erroneous propositions could be difficult to distinguish from one another, as these often involved dynamic interactions between the various factors in the interpreting process. Some additions were clearly the result of explicating the implicit propositions the interpreters considered embedded in the original text. Other additions could be the result of the interpreters' attempt to avoid making meaning or linguistic errors by filling in something neutral or the results of extreme transformation of the original proposition that were comprehended either correctly or incorrectly.

***Linguistic Features***

Linguistic features included any lexical or grammatical errors, word choices, sentence structures, or logical cohesive and coherent links in the interpreted text. Lexical errors could result from interference from the source language, a gap in lexical knowledge, or retrieval errors. Grammatical errors could be caused by syntactic interference from the source text, a gap in syntactic knowledge, or by temporary shortage

of control over the target language, especially if it was a B language, under time pressure. In general, the participants made more such errors when interpreting into their B language. However, as compared to Chinese, English is much stricter in terms of grammatical rules, more errors were observed when interpreting into English across all participants. Participants interpreting into their B language also tended to use more common words and more meaning-based translation.

***Presentation Features***

The category of presentation features included any self-correction or incomplete sentences that may have affected the interpreter's linguistic presentation negatively, any prolonged pauses, and the overall fluency of delivery.

In general, participants in this study made very few incomplete sentences, possibly as a result of the internalized norm that incomplete sentences should be avoided as much as possible. As for self-correction, most of the self-corrections made were due to false starts, which were an inevitable byproduct of the incremental comprehension of the source text. Only a few back-trackings were made to correct interpreting errors or an unsatisfactory translation, possibly because of an internalized norm that corrections should be made only when major errors were involved as making frequent corrections can affect the interpreting of the upcoming messages negatively.

As the norms for interpreting products also emphasize the importance of fluency of delivery and avoidance of any prolonged pauses, the participants employed a variety of strategies during their interpreting to achieve these goals. For example, when the participants did not completely understand the meaning of a coming segment, they tended

to elaborate the previous segment to avoid having a long pause before they fully grasped the meaning of the coming segment. As a result, the interpreters' outputs were generally fluent with few prolonged pauses.

## ILLUSTRATIVE CASES

In the following, I present two cases to demonstrate how the model operates. Both cases were based on passages from CHEN_VOLUNTEERISM that had received comments by most participants but in different ways.

### Case 1:

Following the original passage, I compare and contrast the interpreted texts and comments from three participants:

**ST:** 我想年輕朋友在育幼院和老人安養中心從事志工服務，一定會做得更好因爲年輕朋友較懂得如何與小朋友互動，也更能夠讓老人家窩心

(I think if young people volunteer in orphanages and nursing homes for the elderly, they can definitely do a better job, because they know how to interact with children and can warm the hearts of the elderly.)

***Interpreter S:***

The first example described here was by Interpreter S, who reported dominance in English (personal factor: A language) and interpreted the speech at the slow speed (contextual factor: speed of delivery).

**TT:** When young people work in orphanages and in elderly homes, they will be able to do a better job *than anyone else*, because the young will know how to interact with children *much better than an adult* and they also know how to connect with the elderly.

> *Here I was trying to help listeners understand why [the young] can connect better with children. When I heard "know how to interact with children better," I was thinking why? how? Ok, of course, because they were closer in age. So I added [much better than an] adult. Although that sounds like an addition, I think it was actually embedded here.*

As illustrated by her comment, the addition she made (consequence: addition) was a result of her decision to explicate the meaning (strategy: explication) she believed was embedded in the passage, after searching for coherence (strategy: search for coherence) from the passage that did not make sense to her at first (problem: comprehension) in order to achieve her goal of helping the audience understand (norm: making it easier for the audience).

Contrast the above comment with the following comment from Interpreter R, who reported dominance in Chinese (personal factor: A language) and also interpreted the speech at the slow speed (contextual factor: speed of delivery).

***Interpreter R:***

**TT:** I believe, for young people, they can do a better job in volunteering works at nursery schools, orphanage or uh in the service for elderly people [pause].

> *I was thinking about how to say [orphanage] and [nursing home]…here again I was questioning his words. He was not making sense here. Why did young*

*people know how to interact with children better? Why could they warm the hearts of the elderly? I would say it was just the opposite.*

Based on his comment, Interpreter R was having problem coming up with the appropriate translations for the two terms in the first half of the passage (personal factor: B language proficiency) (problem: retrieval of equivalents). Based on his interpreting, we may further infer that, for the first term, he was having problem either translating (problem: retrieval of equivalents) or deciding the exact referent of it (problem: comprehension), as he first translated it as "nursery schools" but later decided to change it to "orphanage" (monitoring: self-correction). For the second term, it was possible that he had problem finding the equivalent term right away (problem: retrieval of equivalents) or did not know the term (problem: lexical gap) (personal factor: B language proficiency) and hence decided to use a more general way to express it (strategy: generalization).

He abandoned the second half of the passage (strategy: omission) (consequence: omission) because his search for coherence (strategy: search for coherence) was not successful. At the same time, he felt frustrated by the speaker (monitoring: emotional response) (personal factor: affective state toward speaker). It should be noted that Interpreter R had already reported earlier about his frustration with the speaker. One may suspect that this negative emotional response against the speaker (personal factor: affective state toward speaker) earlier and his difficulty with the two terms in the passage (personal factor: B language proficiency) may have affected his ability to find the same "embedded" meaning as Interpreter S. Another contributing factor to his abandonment of the second half of the passage may be the time pressure he felt (contextual factor: time pressure) after dwelling too much on the first part of the passage.

One additional example was from Interpreter N, who reported dominance in Chinese (personal factor: A language) and interpreted the speech at the fast speed (contextual factor: speed of delivery):

***Interpreter N:***

**TT:** I believe with your help, we will do a much better job in nursing home and some child-care facilities.

> *[R: you hesitated a little bit here.] I understood the general meaning. But what did he meant that would be better? Was it the child-care facilities and the nursing home? Or was it the young people? I later made the judgment that what he meant was that when young people devote their time [to these institutions], the child-care facilities and the nursing home will run better. But his sentence was ambiguous… [R: how about interacting with children?] I spent too much time on [the first part of the passage]. I knew he said something afterwards. But he was already talking about something else [when I finished my translation] so I gave up [that part].*

Based on Interpreter N's comment, she was encountering a problem caused by the ambiguity in the first part of the passage (contextual factor: null subject in Chinese) (problem: comprehension) and the effort she made to solve the problem (strategy: select one possibility) had prevented her from hearing the second part of the passage (problem: perception) and consequently she had to abandon this part of the passage (strategy: omission) (consequence: omission) and went on with the interpreting. The problem of ambiguous subjects she referred to in her comment may not be obvious from the English

translation of the original passage I provided, as I already inserted a "they" as subject before the clause "can definitely do a better job." However, as Interpreter N was the only participant who reported a problem with inferring the subject in this passage, it may be safe to say that the difficulty was caused by her temporary shortage of attention to the source speech at that moment, which may be related to her interpreting the speech at the fast speed (contextual factor: speed of delivery).

In addition, one may also notice that Interpreter N interpreted "orphanage" in the original passage as "child-care facilities," similar to the first translation for the term provided by Interpreter R earlier. The problem of mistranslation here may be related to the fact that, instead of using the usual term for "orphanage," the speaker used a Chinese euphemism (contextual factor: use of euphemism in original text) that can be literally translated as "places for raising children," which may contribute to the decisions a few other participants made to generalize both "orphanage" and "nursing home" as, for example, "different charitable organizations"(Interpreter V) in their interpreting (strategy: generalization) (consequence: similar proposition).

**Case 2:**

The second case was based on a passage immediately following the passage in Case 1 in the original text. Here I compare and contrast the interpreted text and comments from four participants.

**ST:**所以就做志工而言，各位不但是專家，也是讓台灣和國際社會更祥和、更進步的守護天使 (So regarding being volunteers, you are not only the experts, but also the

guardian angels that make Taiwan and the international society more peaceful and more progressive.)

The first two examples given here were from Interpreter P and Interpreter H, both reported dominance in English or equal capability in Chinese and English (personal factor: A language) and interpreted the speech at fast speed (contextual factor: speed of delivery).

***Interpreter P:***

**TT:** Therefore, as a volunteer, each and every one of you will help to make Taiwan and the rest of the world a better place to live in.

> *When I heard "the guardian angels that…peaceful and more progressive," I thought of the term "guardian angels", but then I felt using that term would be an exaggeration.*

***Interpreter H:***

**TT:** So as volunteers you will be able to contribute to the world peace as guardian angels of this world.

> *When I heard "guardian angel" I was also thinking about if I should translate it. It was odd. Volunteers as guardian angels? [R: Why did you decide to say it?] Because there was still time available. It was his words, not my words, anyway. If I can say it, I might as well say it. Sometimes I felt I shouldn't have too much personal judgment [when interpreting].*

It is interesting to compare the above two examples from the two English A participants. As indicated by their comments, both participants found the use of the term "guardian angel" not appropriate here (problem: comprehension) (strategy: search for coherence; search failed) but one chose not to translate the term (strategy: omission) (consequence: omission of proposition), while the other still chose to translate it (consequence: identical proposition). It is safe to infer from their comments that although both of them interpreted the speech at fast speed, at the moment when they interpreted this passage, Interpreter H was under less time pressure than Interpreter P (contextual factor: time available). Note that Interpreter H's comment also contained her belief that an interpreter should not have personal judgment over the speaker's word (norm: be an honest spokesperson).

This comment about saying things one found incoherent, but was sure one did not hear wrong, because "there was still time left" (contextual factor: time available), was also echoed in Interpreter R's comment in the following about the same passage that he interpreted at the slow speed. Noted that the availability of extra time also means the interpreter has to say something in order to fill the time slot (norm: avoid long pauses).

***Interpreter R:***

**TT:** Volunteering work is of great importance and our young generation can act as the guardian angel for the society…

> *I was thinking about giving up this part. But then I thought, well, I might just as well say it. Though I felt he was not making sense, I knew how to say "guardian angel."*

It is again interesting to contrast Interpreter R's comment with the following comment from Interpreter A, who also reported dominance in Chinese (personal factor: A language) and interpreted the passage at the slow speed (contextual factor: speed of delivery).

***Interpreter A:***

**TT:** So for volunteers you are the expert and you are also those bring peace to Taiwan and nations around the world [pause] such like the angels.

*I couldn't remember how to say guardian angels at that time. I knew there was a term [for guardian angels].*

Notice that Interpreter A was preoccupied with retrieving the term from memory (problem: retrieval of equivalents) (strategy: generalization) (consequence: similar proposition), and this preoccupation may have prevented her from engaging in any search for coherence for this passage.

# Chapter 5: Discussion

In this final chapter, I first summarize the findings presented in Chapter 4 with regard to the research questions of this study and in light of related literature. I then discuss the limitations of this study and outline the implications of the findings for the training of interpreters and for future research.

## DISCUSSION OF FINDINGS

Using a grounded theory to analyze the various sources of data collected in this study, I built a model showing how interpreters' experience of simultaneous interpreting in different directions was determined by a myriad of factors and the interactions of those factors. In the following, I focus my discussion on the factor of language direction and the two research questions with which I began the study. In addition, I discuss the role interpreting norms play in interpreters' performance and strategy use as an important theme emerging from this study.

### Language Direction and Interpreting Performance

The first major research question raised in this study was how language direction would affect Chinese/English interpreters' performance. I addressed this question through a propositional analysis of the semantic content of the participants' interpreting outputs as well as an error analysis of their linguistic quality. The results indicated that for professional Chinese/English interpreters who had learned English as a foreign language, the percentage of propositions rendered was significantly fewer when interpreting from English to Chinese, or in A-to-B interpreting. Moreover, there was a strong correlation

between the interpreters' self-perceived gaps in their A and B language capabilities and the gaps in the percentage of propositions they actually rendered when interpreting in different directions. This result is in contrast to past studies on student interpreters or untrained bilinguals that showed no significant difference in propositional accuracy scores in different interpreting directions (Tommola & Laakso, 1997; Tammola & Heleva, 1998), and sometimes even a trend for a slight advantage in the A to B direction (Barik, 1975; Tammola and Heleva, 1998). It is plausible that professional interpreters' better comprehension ability of their B language and their emphasis on the quality of their outputs worked together to eliminate the slight advantage that student interpreters may have felt when interpreting from their A language into their B language. As suggested by Bartlomiejczyk (2004), professional interpreters may be more aware of the deficit in their B language than the student interpreters. Consequently, they may be more reluctant to express propositions represented in the original speeches, especially those they judge to be of minor importance, if they feel the quality of their production will not be adequate. When they judge the propositions in the original speeches to be essential for their audience, they may also be more likely to resort to strategies such as generalization or condensation for the sake of the quality of the B language production (Janis, 2002).

The result that the interpreters performed better at a slower speed than at a faster speed was consistent with past research on the effects of delivery speed on interpreters' performance (Gerver, 1975; Lee, 1999a). One particular interesting finding was that, although the interpreters tended to produce fewer propositions correctly when interpreting from their A to B language or when the source speeches were delivered at a faster speed, their interpreting performances in different directions or speeds paralleled

each other to a great extent, suggesting that the interpreters' performances may be determined more by the mastery of the core skills in SI than by individual factors such as language proficiency or delivery rate of the sources speech.

Error analysis of the linguistic quality of the interpretations showed that the participants reporting dominance in Chinese made significantly more language use errors when interpreting from Chinese to English, or in A-to-B interpreting. The results were consistent with Lee's (2003) findings on Korean/English interpreting students. Unlike the student interpreters in Lee's study, however, no significant difference in presentation errors was observed for the professional interpreters in this study. Nevertheless, it should be kept in mind that in this study presentation errors were only defined as any self-corrections or incomplete sentences, while Lee's study also included any pause, hesitation, or pronunciation errors.

Finally, it should be noted that the criteria used in my assessment of the interpreters' performance described above do not represent the overall quality of these interpreters' performance, as the quality of interpreting encompasses a far more complex construct that was beyond the scope of this study. Propositional analysis used in this study, for example, did not take into consideration the relevance or redundancy of individual propositions. Thus, it also failed to account for the general communication effect of the interpreting and the effects that interpreting norms may have had on these interpreters' performance (Gile, 1999).

**Language Direction and Strategy Use**

The second major research question raised in the current study was how language direction would affect Chinese/English interpreters' strategy use. I addressed this question by analyzing the participants' retrospective interview data along with their performance data.

The results showed that, as the comprehension and production activities in SI interact with each other closely, the L1 advantage and L2 disadvantage often cancel each other out. Thus, the interpreters were found to encounter similar problems in their interpreting in different directions and also used similar strategies to address these problems.

However, the differences between interpreting in different directions became more apparent when we consider the role of language proficiency played in many of their decision-makings. As demonstrated by the retrospective interviews, the participants in the study were well aware of the gap between their A and B language proficiency. This awareness seemed to affect their allocation of resources, both consciously and unconsciously. For example, when selecting information for encoding (Liu, 2001; Liu, Schallert & Carroll, 2004), the participants appeared not only to take into consideration the relevance of the information to the audience, but also the linguistic resources available to them. As a result, they tended to be more likely to omit messages that they had difficulty expressing in their B language or to resort to meaning-based interpreting, such as generalization or transformation to express the message, which may be one of the reasons contributing to the fact that fewer propositions were reproduced when they interpreted from their A to B language.

That the interpreters had fewer linguistic resources when interpreting into their B language (Janis, 2000) was manifested in their approaches to classical Chinese, as when compared to participants dominant in English, the participants dominant in Chinese tended to use more Chinese idioms and set-phrases when they interpreted into Chinese. But when interpreting Chinese idioms and set-phrases into English, unlike participants dominant in English who reported searching for equivalent expressions in English, the same participants only aimed to "express the meaning." This tendency to use more meaning-based interpreting when interpreting into one's B language is in line with Dam's (2001) hypothesis that "the more difficult the source text, the more interpreters tend to deviate from its surface form in their target text production"(p.50). However, it also means that these interpreters' analytical and inference-making skills were even more important as inference-making is essential for meaning-based strategies such as generalization or transformation.

The results of the interpreters' retrospective interviews also confirmed Gile's (1995) rules (p. 201-204) for strategy selection in simultaneous interpreting. Being aware of the trade-off between the rules of *maximizing overall information recovery* (Rule 1) and *minimizing recovery interference* (Rule 2), and in an effort to *maximize the communication impact of the speech* (Rule 3), interpreters in this study appeared to focus their effort more on expressing the essential of the source speech in A-to-B interpreting to achieve optimal overall performance.

However, despite the interpreters' effort to achieve optimal performance in their A-to-B interpreting, occasionally the disadvantage of producing in one's B language still overpowered the advantage of listening to one's A language. In line with Gile's Effort

Model (1995), when the interpreters were engaged in one aspect of the task, other aspects were at risk for adversely affected. Thus, searching for corresponding lexical terms may deplete the cognitive resources for finding implicit links between clauses, supporting Seleskovitch's (1999) argument that the efforts interpreters make to search for corresponding expressions in their B language can "[distract] the mind from constructing sense," even though it should be noted that the problems of finding corresponding expressions exist in both directions.

It is particularly interesting how many of the participants mentioned that their choice of strategy was affected by their experience with the past success or failure of one particular strategy, suggesting that their strategy use of interpreting in different directions may have evolved as their experience with interpreting in different directions increased. Moreover, they also mentioned that, as their experience with real-life conferences grew, their beliefs about the nature of interpreting also tended to focus more on interpreting as an act of communication. The fact that most interpreters mentioned this change of beliefs during their retrospection on Chinese-to-English interpreting, or A-to-B interpreting for those interpreters, suggested two possible explanations. The first explanation is that the interpreters may have encountered more problems reproducing the source language messages in their B language in the past. As a result, they had gradually learned to engage more in selecting important messages and to use communication strategies to help them produce interpreting products that conform to the expectancy norms in simultaneous interpreting, such as fluency in delivery, avoidance of prolonged pauses, and logical cohesion in the target texts.

The second explanation is that, due to differences between the Chinese and the English languages, when interpreting from Chinese to English, the interpreters needed to employ more of their analytic and inference-making skills and to make more transformation in order to achieve the same communication effects. This was demonstrated by the fact that in this study, most participants, even those who reported dominance in English, felt they had to listen more carefully to the Chinese inputs both to eliminate redundancy in the messages and to find the implicit messages that was crucial for logical cohesion in their English production, which illustrating once again the interdependence of the issue of language direction and language combination. It is possible that it is the combination of these two explanations that prompted the interpreters with Chinese as their A language to use more meaning-based strategies when interpreting from Chinese to English.

Finally, the results of the study highlight once again the difficulty in separating cognitive-based and norm-based strategies in the interpreting process (Shlesinger, 1999) as many of the compromises made by interpreters in A-to-B interpreting were guided by their beliefs about what their interpreting should look like and the strategies considered appropriate to achieve their goals. I discuss the role interpreting norms play in interpreters' performance and strategy use in more details in the following sub-section.

**Norms in Simultaneous Interpreting**

An intriguing theme emerging from the data that goes beyond my original research questions is how the concept of norms was involved in the performance and strategy use of interpreters working in different language directions. Throughout the

qualitative analysis of this study, I came to see how some intersubjective norms (Schjoldager, 1995) seemed to figure prominently in this group of interpreters' experience, particularly in their selection of solutions to the problems they encountered during interpreting in different directions. In my analysis, there were two categories of norms. In terms of expectancy norms (Chesterman, 1997), most interpreters mentioned, directly or indirectly, the importance with which they held their productions to be fluent, logical, without prolonged pauses, and to express the sense or main ideas of the original speeches. In terms of professional norms that licensed the appropriate use of strategies, these interpreters agreed that it was acceptable to omit redundant or less important aspects of a message in order to allow them to catch up with the speaker, to generalize when they were uncertain about the meaning of the original message, or to adapt the original message in consideration of the background knowledge of the target audience.

These norms were particularly important when the interpreting task became too difficult and the interpreters felt they had to make compromises between the "ideal" quality standard in SI and their actual working conditions (Garzone, 2002; Schjoldager, 1995). Interpreting from A to B languages seemed to be an example of such a condition that the interpreters reported needed compromises in order to achieve overall optimal performance. As a result, when interpreting from Chinese to English, in order to achieve a fluent and logical interpreting, interpreters reporting Chinese as their A language seemed to be more ready to forgo completeness and concentrate on the essentials, to use meaning-based interpreting to overcome the linguistic gap in their B language instead of engaging in searching for possible equivalents that may exist, and to dedicate more attentional resources to grammaticality and acceptability of their languages. In other

words, the fewer propositions produced in their A-to-B interpreting can be considered a compromise they made to maintain the overall quality of their interpreting through appropriate strategy use. As the English A interpreters also emphasized the necessity of eliminating some of the redundancy in the original Chinese speeches, and the importance of having explicit logical cohesions in their interpreting in English, it can be argued that these interpreters' decisions were also made on the basis of the characteristics of the two languages, or the expectancy norms of these languages (Chesterman, 1997).

Where did these interpreting norms come from? It seemed that these norms were first taught through professional training. However, judging from what some interpreters reported about how their beliefs had changed as their interpreting experience grew, it appeared that these norms were further refined and eventually internalized through their working experience, their observation of interpreting partners "in the booth," and their interactions with interpreting users (Garzone, 2002). The fact that almost all the interpreters in this study were teaching interpreting courses at the undergraduate or graduate levels also ensures that these norms will continue to be passed on as part of the socialization processes of younger interpreters and thus continue to influence the new generations of interpreters when they are asked to interpret in different directions.

## LIMITATIONS OF THE STUDY

There are several limitations that should be kept in mind when considering the results of this study. I discuss these limitations in the following.

**General Limitations**

The data of the study were based only on a small number of Chinese/English conference interpreters in Taiwan and hence can be generalized only tentatively across interpreters working with other language pairs or in other working contexts. For example, the syntactic and cultural distance between Chinese and English may have required these interpreters to use different strategies than would be used by interpreters working with other language combinations. That these interpreters were all professionally trained and worked as freelancers in Taiwan may also mean that the interpreting norms they held, which seemed to be rather influential on their interpreting behaviors, could be different from interpreters who are self-trained, work as in-house interpreters, or work for international organizations. In addition, because all participants in this study had Chinese as their native language, including those reporting dominance in English, the findings may not generalize to Chinese/English interpreters who have English as their native language and learned Chinese as a second or foreign language.

Another important limitation to keep in mind when interpreting the results is that there were only ten participants in the study and hence the performance of each participant could influence substantially the data of the study. As several participants had just finished an interpreting or teaching assignment before they came to the experiment site and reported feeling tired by the third or fourth interpreting task, it is possible that fatigue may have affected their interpreting performance.

Another limitation of the study came from the texts chosen for the study. The fact that all four speeches chosen were speeches originally delivered by heads of states may

have affected the participants' interpreting processes and products differently from speeches of other types of topics or speeches made by other types of speakers.

**Issue of Ecological Validity**

The data of this study were elicited in an experimental setting, which means that many of the important features characterizing real-life conference interpreting were either missing or compromised.

To begin with, the source texts used in this study were pre-recorded, read texts, and most participants commented during the retrospective interviews that the texts seemed unnatural, monotonous, or lacking the prosodic features that were important to their interpreting processes. Furthermore, because the participants were all familiar with and often had experience interpreting for the original speakers of the source speeches, President Chen and President Bush, the fact that the source speeches had been re-recorded by readers differing in delivery styles and voice quality of the original speakers was commented by some participants as distracting at the beginning. As studies have shown that the prosodic features of the speech inputs are crucial to the interpreters' processing of the source speech messages (Dejean le Feal, 1982; Gerver, 1971 ), the read texts used in this study may have affected the participants' interpreting negatively.

Additionally, many participants mentioned that not having a real audience present for their interpreting had negative effects on their motivation for interpreting. Unlike student interpreters who may be used to the artificial situation of interpreting exercises, having a context and real audience may be more important to professional interpreters (Liu, 2001; Vik-Tuovinen, 2002). As demonstrated in the model presented in the

previous chapter, the absence of contextual factors, including the presence of the speaker, the listeners, and the situation of the conference, may have affected the participants' Chinese-to-English interpreting to a greater extent because of the more prominent role that contextual cues play in Chinese language comprehension.

### Retrospective Interviews

Using retrospective interviews provided a useful way to tap into the participants' interpreting processes in this study. However, it also meant that the various reliability and validity issues involved in using retrospective protocol also applied to this study (for a review, see Ericsson and Simon, 1993; Ivanova, 2000). Moreover, the individual differences found in other interpreting studies utilizing retrospective techniques were also observed in this study. Thus, participants who were either more conscious or more articulate about their thinking processes and the norms guiding their decision-making may have contributed more to the data than participants who tended to make fewer comments during the retrospective interviews.

Finally, as mentioned earlier, the fact that many of the interpreters were my former colleagues may have affected the retrospective interviews to a certain extent.

## IMPLICATIONS FOR TRAINING OF SIMULTANEOUS INTERPRETING

This study demonstrated that interpreting in different directions often involved different processes and hence resulted in different products, suggesting that, besides the core skills that should be promoted in interpreting in either direction, the training of A-to-B interpreting should differ from that for B-to-A interpreting in at least several ways.

First, as Donovan (2003) rightly argued, in consideration of the less flexibility in the interpreters' B language, the teaching of A-to-B interpreting must emphasize even more on communication than teaching of B-to-A interpreting. In the case of Chinese-to-English interpreting, more analytical and inference-making skills may be required for interpreters with English as the B language to engage in meaning-based interpreting. It may also be helpful for students to be aware of the different preparation techniques and strategy use for interpreting in different directions (Donovan, 2003; Snelling, 1992; Wu, 1998).

The fact that even experienced interpreters can still be struggling with grammatical and lexical problems in their interpreting into the B language also underlines the importance of having language enhancement courses for student interpreters. In addition to the many exercises that can be used to enhance the interpreting students' general language proficiency (Setton, 1993), language-combination-specific training can also be included in these language enhancement courses to raise students' awareness of the different discourse structures of their working languages and the problems and solutions that may be unique to interpreting from one language to another, regardless of one's A or B languages. This component may be taught most effectively by the interpreting teachers because its specific purpose is to help interpreters use this knowledge for interpreting in different directions. Thus, although many interpreting teachers may be reluctant to teach language classes, these classes cannot be left to language teachers. Finally, as attested by the parallel nature of professional interpreters' performance in both directions, language proficiency is only one part of the complex interpreting processes that determine the quality of interpreting. Thus, while emphasizing

the importance of language enhancement, it may be more beneficial for interpreting teachers and students to focus on core interpreting skills than to become preoccupied with amending language proficiency problems.

## IMPLICATIONS FOR FUTURE RESEARCH

As mentioned earlier, most of our current understanding about simultaneous interpreting was established by research on B-to-A interpreting only. This study is one of the few that focus on describing interpreters' experience in simultaneous interpreting in different directions. More studies are needed to shed light on the issue of directionality in simultaneous interpreting. It will be interesting to see if interpreters dealing with different language pairs, for example, Chinese and Japanese, which are both considered "high context" languages (Hall, 1976), experience the issue of directionality in different ways. In addition, to address the need for pedagogical training for A-to-B interpreting, it will be particularly useful to extend the investigation from professional interpreters to student interpreters by using the expert-novice research paradigm to see how student interpreters behave as compared to professional interpreters and how the results can be integrated into interpreting teaching pedagogy.

Another question raised in the study that needs further research is the role of norms on interpreters' performance and strategy use in different directions. Further investigation using stimulated retrospective interviews or other data elicitation techniques may help clarify the interaction between cognitive-based and norm-based interpreting activities.

Due to the limited scope of this study, many questions about the possible differences and similarities between interpreting in different directions were not addressed. The issue of quality of interpreting in different directions, for example, was only approached through propositional analysis and error analysis of linguistic quality. Other measures of interpreting performance, such as its temporal features or logical links, may be interesting topics for further research. To complement the qualitative analysis of the interpreters' retrospective interviews, a more quantitative analysis of retrospective protocols may also reveal interesting aspects about the interpreting process.

Finally, it may be interesting to compare interpreters' strategy use in A-to-B simultaneous interpreting with their strategy use in A-to-B consecutive interpreting or with second language learners' use of communication strategies (Kasper & Kellerman, 1997) to see how the cognitive constraints unique to simultaneous interpreting affect interpreters' strategy use.

## CONCLUSION

The present study aimed to explore professional Chinese/English interpreters' experience of simultaneous interpreting in different language directions, focusing specifically on the impact of language directions on their performance and strategy use. Results of this study indicate that professional interpreters who must do simultaneous interpreting in both directions regularly may develop strategic approaches to cope with the different demands experienced in A-to-B and B-to-A interpreting. The difference in their performances seems not only to be a result of the asymmetry between their A and B language proficiency, but also a result of their metacognitive awareness of the limits of

their language abilities, the strategies available to them, their audience's expectations and other norms they believe apply to their performance, as well as the discourse structures of their working languages.

The present data suggest professional interpreters may again behave differently from student interpreters when it comes to simultaneous interpreting in different directions. This study not only sheds light on the differences in performance and strategy use between interpreters working with different language directions, but also can contribute to design of more effective interpreting pedagogy. Moreover, by furthering our understanding of the role that L1 and L2 proficiency plays in this unique form of communication, this study may also contribute to the research on bilingualism and second language acquisition in general.

## Appendix A: Language Background Questionnaire

*This questionnaire concerns your language experiences over the course of your lifetime. You can answer the questions either in Chinese or in English. Feel free to elaborate where you think it would be helpful to the study. All responses are confidential. If there are questions you prefer not to answer, you may skip them. Thank you again for your participation.*

1. Where were you born?

2. What is your age?
   25-35 36-45 46-55 56-65 over 65

3. What languages other than Mandarin Chinese do you know (including both foreign languages and "dialects" such as Taiwanese)?

4. At what age(s) did you start learning each of these languages?

5. At what age were you first exposed to English in school?

6. Please indicate the approximate periods in which you have studied English formally.

   In elementary school, I studied English from_____grade until_____grade
   In secondary school, I studied English from_____grade until_____grade
   In college, I studied English for_____semester(s)
   In graduate school, I studied English for_____semester(s)

   Please elaborate if there are special circumstances. For example, your school didn't offer English courses but you studied English on your own or in private language institutes.

7. Was English used as the language of instruction in any of your schooling experience? Please elaborate.

8. What was your major in college?

9. At what age did you begin to hear English on a regular basis?

10. At what age were you first immersed in English (extended stay within an English-speaking country)?

11. At what age did you begin to use English on a daily basis?

12. At what age did you begin to speak English with ease?

13. All told, for how many years have you studied English?

14. All told, for how many years have you lived in an English-speaking country?

15. On a scale of 1 (not at all motivated) to 10 (highly motivated), rate your motivation to learn English at school.

16. On a scale of 1 (very hard to learn) to 10 (very easy to learn), how easy was it for you to learn English at school?

17. On a scale of 1 (least nativelike) to 10 (most nativelike), rate your oral proficiency in each of your languages, including Mandarin Chinese.
    Mandarin Chinese:
    English:
    Other(s):

18. On a scale of 1 (least nativelike) to 10 (most nativelike), rate your command of grammar in each of your languages, including Mandarin Chinese.
    Mandarin Chinese:
    English:
    Other(s):

19. On a scale of 1 (least nativelike) to 10 (most nativelike), rate your command of vocabulary in each of your languages, including Mandarin Chinese.
    Mandarin Chinese:
    English:
    Other(s):

20. On a scale of 1 (least nativelike) to 10 (most nativelike), rate your pronunciation in each of your languages, including Mandarin Chinese.
    Mandarin Chinese:
    English:
    Other(s):

21. Do you feel that you have a special talent for learning languages? Please elaborate.

22. If you know other foreign languages besides English, were they easier or harder to learn than English?

23. Of your languages (including Mandarin Chinese), which do you consider your <u>dominant language</u>?

24. What efforts (if any) do you make to maintain your English and/or Chinese? Please elaborate.

25. Please rate your general Chinese and English proficiency in <u>LISTENING</u> on a scale from 1 to 10? (1= not at all proficient, 10= totally proficient)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Formal English | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Informal English | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Formal Chinese | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Informal Chinese | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

26. Please rate your general Chinese and English proficiency in <u>SPEAKING</u> on a scale from 1 to 10? (1 = not at all proficient, 10 = totally proficient)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Formal English | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Informal English | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Formal Chinese | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Informal Chinese | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

THANK YOU FOR FILLING OUT THIS QUESTIONNAIRE.

## Appendix B: Interpreting Background Questionnaire

*This questionnaire concerns your interpreting training and experience. Feel free to elaborate where you think it would be helpful to the study. All responses are confidential. If there are questions you prefer not to answer, you may skip them. Thank you again for your participation.*

1. Of your working languages, which language is your A language? Which is your B language? Which is your C language, if there is any?
   A language _____
   B language _____
   C language _____

2. How many years of formal interpretation training do you have?

3. In your training program, for how long were you trained to do consecutive interpreting in the following language directions?
   From Chinese to English: _____ semester(s)
   From English to Chinese: _____ semester(s)

4. In your training program, for how long were you trained to do simultaneous interpreting in the following language directions?
   From Chinese to English: _____ semester(s)
   From English to Chinese: _____ semester(s)

5. How many years of professional interpretation experience do you have?
   _____ years

6. Over your professional career, approximately how many days have you worked on interpretation assignments in one year?

   Below 20 days  20-40 days  40-60 days  60-80 days  over 80 days

7. Of these interpretation assignments, approximately how much is simultaneous interpretation and how much is consecutive interpretation?
   Simultaneous interpretation _____%

Consecutive interpretation _____%

8. Of these assignments, approximately how much is interpreting from English into Chinese and how much from Chinese into English?
   Simultaneous interpretation:
   From English to Chinese _____%
   From Chinese to English _____%

   Consecutive interpretation:
   From English to Chinese _____%
   From Chinese to English _____%

9. Which LANGUAGE DIRECTION do you feel more comfortable working with?
   From Chinese to English _____
   From English to Chinese _____
   Equally comfortable _____

10. If you are currently an interpreting teacher, what courses do you teach?

# Appendix C: Materials

**BUSH_VOLUNTEERISM**

President Bush's Speech on Volunteerism Delivered on Thanksgiving in 2002

Good morning. This week all across America we gather with the people we love to give thanks for the blessings in our lives. Each family has its own traditions, yet we are united as a nation in setting aside a day of gratitude. We are grateful for the freedoms we enjoy, grateful for the loved ones who give meaning to our lives, and grateful for the many gifts of this prosperous land. On Thanksgiving we acknowledge that all of these things, and life itself, come not from the hand of man, but from Almighty God.

The blessings we have received take on special meaning in this time of challenge for our country. Over the last year millions of Americans have found renewed appreciation for our liberty and for the men and women who serve in its defense. We have held our family and our friends closer, spending more time together, and letting them know we love them.

Taking time to count our own blessings reminds us that many people struggle every day -- men, women, and children facing hunger, homelessness, illness, addiction, or despair. These are not strangers. They are fellow Americans needing comfort, love, and compassion. I ask all Americans to consider how you can give someone in need a reason to be thankful in this holiday season and throughout the year.

It's easy to get started and to have an immediate impact. Volunteering your time at a soup kitchen, teaching a child to read, visiting a patient in the hospital, or taking a meal to an elderly neighbor or a shut-in are all simple acts of compassion that can brighten someone's life. Every act of love and generosity, however small it may seem, is significant. Every time you reach out to a neighbor in need you touch a life, you improve your community, and you strengthen our nation.

Earlier this year I created the USA Freedom Corps office in the White House to harness the power of millions of acts of charity, compassion, and love to make America a better place. At that time, I asked every person in America to commit four thousand hours over a lifetime—or about one hundred hours a year—to serving neighbors in need. I hope you'll consider joining the armies of compassion, and dedicating time and energy and service to others. I'm so proud of the millions of Americans who have answered the call to service, enriching the lives of others with acts of kindness. It is a testament to the good heart and the giving spirit of the American people. With their good works, volunteers are living out the spirit of this season. And year round they are showing the heart and soul of our people -- which is the greatest strength of our nation.

There's no better time than this season of Thanksgiving to renew our commitment to helping those in need. Many Americans volunteer with their families, allowing them to

spend time together while improving the lives of others. And if you find a need that no one else is meeting, you might want to start a group of your own.

The U S A Freedom Corp website – U S A Freedom Corp dot gov -- is a wonderful place to get started. This resource offers valuable information about service opportunities in your home town, across America, and around the world. You can also get information by calling 1- 8 7 7- U S A- C O R P.

Take the time to find out how you can help your fellow Americans and make this holiday season a season of service.

Happy Thanksgiving and thank you for listening.

**BUSH_EDUCATION**

President Bush's Speech on Education Reform—No Child Left Behind Act

Good morning. One year ago this month, our country set a bold new course in public education. With the No Child Left Behind Act, America began a promising era in our public schools, an era of local control, high standards, and accountability that will produce better results for America's students.

Under the new law, key choices about education spending will be made at the local level by parents and teachers and principals who know the children best. Government cannot and must not try to run the nation's schools from Washington, D. C.

Yet, the federal government has an important role. We are providing far more money than ever before to help states and local school districts, more than twenty two billion dollars in this school year alone. Over the last two years, we have increased federal spending by forty percent and, in return, we are insisting that schools use that money wisely. States must set new and higher goals for every student, to ensure that students are learning the basics of reading and math. The law also requires that schools regularly test students, share the results with parents and show how the results in each school compare with others.

My budget provides more than enough money for states to test every student, every year, in grades three through eight. Testing is the only way to know which students are learning and which students need extra help so we can give them help before they fall further behind. For parents with children in persistently failing schools, the law provides hopeful options.

Those parents can choose to send their children to better public schools or receive funding to pay for after- school tutoring or other academic help. No parent will have to settle year after year for schools that do not teach and will not change. Instead of getting excuses, parents will now get choices.

Across America, states and school districts are working hard to implement these reforms. They are developing accountability plans and beginning innovative tutoring plans. The path to real reform and better results is not easy, but it is essential.

The priorities of last year's reforms will also be reflected in the budget I will submit to Congress this year. Too many students and lower income families fall behind early, resulting in a terrible gap in test scores between these students and their more fortunate peers. To help close this achievement gap, I will ask Congress to approve an additional one billion dollars, a total of twelve point three billion dollars, for the Title I program in the two thousand four budget. This would be the highest funding level ever for Title I, which serves our neediest students.

Our reforms will not be complete until every child in America has an equal chance to succeed in school and rise in the world. For every child, education begins with strong

reading skills. With the Reading First program, we have set a national goal to make sure that every child in America is reading by the third grade. To move toward that goal, I will request more than one point one billion dollars for federal reading programs in next year's budget, an increase of seventy five million dollars over last year's budget request. This investment will go only to support programs with proven results in teaching children to read.

The No Child Left Behind Act was a victory of bipartisan cooperation. By this law, we affirmed our basic faith in the wisdom of parents and communities, and our fundamental belief in the promise of every child. The work of reform is well begun and we are determined to continue that effort until every school in America is a place of learning and achievement.

Thank you for listening.

**CHEN_VOLUNTEERISM**

President Chen's speech on National Youth Service Day

(An English translation done by the researcher is included at the end of the Chinese text)

陳水扁總統應邀參加「全球青年服務日」活動致詞

阿扁很高興能夠有這個榮幸來參加行政院青輔會所主辦的GYSD「全球青年服務日」的活動。看到這麼多年輕有朝氣的面孔，有一股擋不住的活力，覺得自己好像也年輕起來了。

個人常常在想，一個人花一千個小時來行善是很值得尊重的事，如果有一千個人各花一個小時來做志工，對這個社會的幫助可以更廣大、更深遠。特別是年輕朋友們，如果能夠利用生活中的一點點時間來做志工，絕對可以改變這個世界，所以我們永遠不要低估「青年可以改變世界」的可能性。

過去幾個月以來，阿扁有機會接觸到許多青年志工朋友。別看大家年紀輕輕，有些人已經擁有超過十年的志工經歷。在大家身上，我們看到年輕朋友展現出不同以往的服務方式，從照顧老人、兒童或身心障礙者的直接勞力式服務，到文史導覽，資訊服務這種知識工作的服務，青年朋友們都藉由「服務」，展現出一種不同的新風貌，那就是活力、希望與進步。

年輕人的活力是自然流露，不用特別表現。現在的社會有各式各樣的志工機會，等待各位去服務、學習、成長。我想年輕朋友在育幼院和老人安養中心從事志工服務，一定會做得更好，因爲年輕朋友較懂得如何與小朋友互動，也更能夠讓老人家窩心。

所以就做「志工」而言，各位不但是專家，也是讓台灣和國際社會更祥和、更進步的「守護天使」。各位年輕朋友應該覺得很幸福，因爲各位擁有比阿扁與許多領袖人物更棒的優勢---那就是擁有更多的資訊及學習資源，知道可以去哪裡從事志工，並且有更優越的耐力和能力去做好志工服務。

今天台灣最令世界各國欽羨的民主奇蹟，也是許許多多先進前輩，投注了他們的青春歲月，以志工的精神，出錢出力，不伎不求打拼造就而成的。所以今天在享受前人成果的同時，我們也應該思考如何給未來新世代一個更好的世界。阿扁所倡導的「志工台灣」精神便在於此，只要我們願意隨時隨地，以我們的能力、熱誠去服務我們的社群、鄉里，阿扁相信台灣會創造更多令世人刮目相看的奇蹟。

青年是國家重要的資產，也是使世界更美好的動能。長江後浪推前浪、青出於藍更

勝於藍，青年所展現出來的能力和創意往往是意想不到的。因爲青年的參與，也使得許多事務有了更多的可能及更新的創意。與全球接軌的GYSD「全球青年服務日」，就是一個具體展現年輕人服務熱誠及創意的圓夢嘉年華會。

GYSD是一個很好的起點，從現在開始，各位親愛的「台灣之子」應該更珍惜所擁有的寶貴資產，也就是多元的志工機會及學習資源結合，再運用你們的活力和希望，引領國家社會的進步與發展。

阿扁相信，年輕人的力量是無限廣大，夢想也會無限延伸，經由「志工服務」，可以使年輕人的力量和夢想結合。最後，阿扁要大聲的說：「永遠不要低估年輕人的潛力，因爲青年可以改變世界！」

(English Translation)
I am delighted and honored to join you on the Global Youth Service Day ceremony held by the National Youth Commission of the Executive Yuan. Seeing so many young and bright faces, sensing all the energy, I feel myself become younger, too.

I often think that a single individual who spends 1000 hours doing good deserves respect, but if 1000 people spend one hour each on volunteer work, the benefits to society are even broader and deeper. Especially for young people, if they can all devote a little bit of their time to volunteer work, they will definitely make a difference in the world. So we should never underestimate the possibility that the youth can change the world.

Over the past few months, I've had the opportunities to meet with many young volunteers. Though they are young, some of them have volunteered for over 10 years. From them, we can see the diverse ways in which young people serve the society. Some of them help take care of the elderly, children, or the handicapped. Some of them work as guides in museums and libraries or provide information for people. Young people have, through serving, shown a different face, that is, energy, hope and progress.

Young people are energetic by nature. In today's society, there are all kinds of volunteering opportunities waiting for you. By providing services to other people, you can also learn and grow in the process. I think if young people volunteer in orphanages and nursing homes for the elderly, they can do a better job than anyone else, because they know how to interact with children and can warm the hearts of the elderly.

So regarding being volunteers, you are not only the experts, but also the guardian angels that make Taiwan and the international society more peaceful and more progressive. You should also feel lucky that you are enjoying an even bigger advantage than me and other leaders, as you have more access to information and learning resources. You know where to find volunteer work and you have better stamina and ability to serve as volunteers.

Today the democratic miracle in Taiwan is admired by countries all over the world. Many people of the older generation devoted their youth, and in the spirit of volunteerism, donated their money and labor generously, to create this miracle. So while we are enjoying the fruits of their hard labor, we should also think about what we can do for the future generations. That's why I've been promoting the spirit of "Volunteer Taiwan". As long as we are willing to always make use of our ability and enthusiasm to serve our communities and people, I believe we can create more miracles that impress the world.

Youth are an important asset for a nation and also the momentum to create a better world. The new generations often outperform the previous generations. The ability and creativity of young people often exceed our expectations. Because of the participation of young people, there are more possibilities and creativity. The Global Youth Service Day celebrated worldwide is a showcase of youth's enthusiasm and creativity for serving people.

GYSD is a good beginning. From now on, all you dear "sons of Taiwan" should cherish even more the precious asset you have, that is, the opportunity to combine diverse volunteering opportunities and learning resources and to utilize your energy and hope to lead our country to the path of great progress and development.

I firmly believe that young people are powerful. And their dream can extend indefinitely. Through "volunteer services", young people can combine their power and dreams. To conclude, I would like to proclaim that we should never underestimate the potential of youth, because youth can change the world!

I wish you all good luck and I hope you will all fulfill "the youthful dream of the son of Taiwan".

**CHEN_EDUCATION**

President Chen's Remarks on Taiwan's Educational Reform

(An English translation done by the researcher is included at the end of the Chinese text)

陳水扁總統參加國立台灣科學教育館新館開幕典禮致詞有關教育改革部分

十年前，爲了因應全球化的競爭，以及知識經濟的崛起，政府開始全面推動「教育改革」，希望台灣教育的內容能更開放、更多元化、更有彈性。教育的目的不再只是強調「知識」的灌輸，同時也要重視學生獨立思考和解決問題能力的培養。而總結過去三年多以來，各種「教改」的政策與措施，我們可以萃取出三個核心價值：「多元開放」、「公平正義」及「追求卓越」。

「多元開放」簡單地說，就是要「因材施教」。不要只用一把尺來衡量所有的學生，要讓擁有不同學習興趣和特殊才能的學生，也能有機會充分發揮所長。因此，從師資的培養、教科書的編寫、升學管道的充實，乃至於課程綱要的設計，都儘量多元開放，讓整個教育體系能朝多方面發展。過去的教育制度，每年也許可以培養出二萬個優秀的學生，但它的代價很可能是犧牲了十萬個學生接受正常教育的機會。而未來的教育制度，不但原來的二萬個優秀學生能快樂的學習，另外的十萬個學生也能有機會學有一技之長，或是充分發揮他們的才能。

「公平正義」則是要把教育資源讓更多的人共享，不因爲城鄉或是貧富的差距，而被剝奪了接受教育的機會與權利。過去十年，我們把大學的窄門打開了，讓更多的學生有機會進大學，這就是公平。而過去的三年，我們將大學學費的漲幅，大幅縮小爲公立大學百分之三點O四，私立大學百分之O點O四。同時，政府也大幅放寬助學貸款的條件，並將貸款的利率由最高點的百分之八點一調降爲百分之二點九二五，儘量幫忙減輕讀大學的負擔，這就是正義。

「追求卓越」則有兩層的意義：一方面是要提升全民教育的水準，因此政府正積極推動國民教育向下與向上的延伸，於九十三學年度起，首先將離島和原住民鄉鎮五歲的幼兒納入國民教育體系。同時，也積極規劃「十二年國教」的工作，希望以五年的時間，建立起優質且普及的高中、職教育環境，以啓動「K ＋ 12」的國民教育體系；另一方面，政府也規劃以五年五百億元的經費，積極投資於高等教育，發展一流的大學和頂尖的研究中心，培養具有國際優勢競爭力的人才。

如同天下所有的父母一樣，教育工作是阿扁最關心、也最重視的施政工作，但阿扁從來不隨意干涉教育工作的推動。過去台灣的教育一直被執政者當成教化人民、灌輸特定政治教條的工具，今天好不容易讓教育的工作回歸教育的本質，我們絕對不可以再走回頭路，一定要讓政治的歸政治、教育的歸教育。教育是國家的百年大

業，學生學習的歷程一生也只有一次。今天我們推動「教改」、堅持「教改」，是爲了我們的後代子孫作準備，我們有信心、也有決心，「教改」一定會成功，也一定要成功。

最後，祝福大家身體健康、萬事如意。

Ten years ago, in response to the global competition and the emergence of a knowledge-based economy, the government started to implement the education reform in an effort to make the educational system in Taiwan more open, diverse and flexible. The purpose of education is no longer just to transmit knowledge, but to help students think independently and excel at problem-solving. Over the past three years, the policies and measures implemented under this reform can be summarized by three core values: diversity and openness, fairness and justice, and striving for excellence.

Diversity and openness, simply put, means to adapt teaching to students' abilities. Students should not be measured with the same standards. Those with different learning interests and abilities should have the opportunities to develop their strengths. Therefore, from teacher training, textbook compilations, channels for advancement, to curriculum guidelines, things have been opening up and diversified so that the whole education system can be more diverse. Our education system in the past might have been able to produce twenty thousand excellent students every year, but it was often at the expense of one hundred thousand students. Our educational system in the future, however, will be able to help the twenty thousand excellent students to learn happily, but also to enable the one hundred thousand students to learn a professional skill and to develop their potential completely.

Fairness and justice means to enable more people to enjoy our educational resources. Students, in urban or rural areas, rich or poor, are entitled to receive good education. Over the last decade, there has been an increase in the number of colleges and universities and more students have been able to receive higher education. This is fairness. Over the past three years, the rates of increase for university tuition have been lowered significantly to 3.04% for public universities and 0.04% for private universities. Also, the government has loosened the requirements for school loans and lowered the interest rate from 8.1% to 2.925% in an effort to make the university education more affordable. This is justice.

By striving for excellence I mean two things. One is to raise the educational levels achieved by all citizens. To achieve this goal, the government has been working on expanding our national education. Since the academic year 2004 (Republic of China Year 93), every 5-year-old from the offshore islands and aboriginal towns will be included in the national educational system. We are also working on establishing a 12-year national education. We hope that in 5 years, we will establish a high-quality and comprehensive high school and vocational high school educational system and implement a K+12 system. In addition, the government plans to allocate 50 billion NT dollars in the next

five years for higher education, to develop first-rate universities and top research centers, and to cultivate talent that can compete globally.

Just as parents everywhere, education is the issue that I pay most attention to and also value most under my administration. But I also want to stay away from interfering with educational affairs. In the past, education was used as a tool by the government to teach and to indoctrinate people. Today, we have finally freed education from political influence. We should never go back to the old path. Let's make sure that politics remain politics and education remains education. Education is of vital and lasting importance to a country. Also, students can only go through their learning experience once. Today we implement education reform and insist on it for the benefits of our future generations. We are confident and determined to make this education reform a great success!

Finally, I would like to wish everyone here great health and happiness.

# Appendix D: Segmentation for Chinese Speeches

**SEGMENTATION OF CHEN_VOLUNTEERISM**

(604 words; 1081 characters)

阿扁 很 高興 能夠 有 這 個 榮幸 來 參加 行政院 青輔會 所 主辦 的 GYSD「全球 青年 服務日」 的 活動。看到這麼多 年輕 有 朝氣 的 面孔，有 一 股 擋不住 的 活力，覺得自己 好像 也 年輕 起來 了。

個人 常常 在 想，一 個 人 花 一 千 個 小時 來 行善 是 很值得 尊重 的 事，如果 有 一 千 個 人 各 花 一 個 小時 來做 志工，對 這 個 社會 的 幫助 可以 更 廣大、更 深遠。特別 是年輕 朋友們，如果 能夠 利用 生活 中 的 一點點 時間 來 做 志工，絕對 可以 改變 這 個 世界，所以 我們 永遠 不要 低估 「青年可以 改變 世界」 的 可能性。

過去 幾 個 月 以來，阿扁 有 機會 接觸到 許多 青年 志工 朋友。別 看 大家
年紀 輕輕，有 些 人 已經 擁有 超過 十 年 的 志工 經歷。在 大家 身 上，我們 看到 年輕 朋友 展現出 不同以往 的 服務 方式，從照顧 老人、兒童 或
身心 障礙 者 的 直接 勞力式 服務，到 文史 導覽，資訊 服務 這種 知識 工作 的 服務，青年 朋友們 都 藉由 「服務」，展現出 一種 不同 的 新 風貌，那 就是 活力 、 希望 與 進步。

年輕人 的 活力 是 自然 流露，不用 特別 表現。現在 的 社會 有各式各樣 的志工 機會，等待 各位 去 服務、學習、成長。我 想 年輕朋友 在 育幼院 和 老人 安養 中心 從事 志工 服務，一定 會 做得 更 好，因爲 年輕 朋友 較 懂得 如何 與 小朋友 互動，也 更能夠 讓 老人家 窩心。

所以 就 做 「志工」 而 言，各位 不但 是 專家，也 是 讓 台灣和 國際 社會 更祥和、更 進步 的 「守護 天使」。各位 年輕 朋友應該 覺得 很 幸福，因爲 各位 擁有 比 阿扁 與 許多 領袖 人物更 棒 的 優勢---那 就是 擁有 更多 的 資訊 及 學習 資源，知道可以 去 哪裡 從事 志工，並且 有 更 優越 的 耐力 和 能力 去做好 志工 服務。

今天 台灣 最 令 世界 各 國 欽羨 的 民主 奇蹟，也 是 許許多多 先進 前輩，投注 了 他們 的 青春 歲月，以 志工 的 精神，出 錢 出 力，不 伎 不 求 打拼 造就 而 成 的。所以 今天 在 享受 前人 成果 的 同時，我們 也 應該 思考 如何 給 未來 新 世代 一個 更 好 的 世界。阿扁 所 倡導 的「志工 台灣」精神便 在 於 此 ，只要 我們 願意 隨時 隨地，以 我們 的 能力、熱誠 去 服務 我們 的 社群 、 鄉里 ，阿扁 相信 台灣 會 創造 更多 令 世人 刮 目 相 看 的奇蹟。

青年 是 國家 重要 的 資產，也 是 使 世界 更 美好 的 動能。長江 後 浪 推 前 浪、青 出 於 藍 更 勝 於 藍，青年 所 展現 出來 的 能力 和 創意 往往 是意想 不到 的。因爲 青年 的 參與，也 使得 許多 事務 有 了 更多 的
可能 及 更新 的 創意。與 全球 接軌 的 GYSD「全球 青年 服務 日 」，就是 一 個 具體 展現 年輕人 服務 熱誠 及 創意 的 圓夢 嘉年華會。

GYSD 是 一個 很 好 的 起點，從 現在 開始，各位 親愛的 「台灣之 子」應該 更 珍惜 所 擁有 的 寶貴 資產，也 就是 多元 的 志工 機會 及 學習 資源 結合，再 運用 你們 的 活力 和 希望，引領國家 社會 的 進步 與 發展。

阿扁 相信，年輕人 的 力量 是 無限 廣大，夢想 也 會 無限 延伸，經由 「志工服務」，可以 使 年輕人 的 力量 和 夢想 結合。最後，阿扁 要 大聲 的 說：「永遠 不要 低估 年輕人 的 潛力，因爲 青年 可以 改變 世界！」

**SEGMENTATION OF CHEN_EDUCATION**

(611 words; 1058 characters)

大家 好，十 年 前，爲了 因應 全球化 的 競爭，以及 知識 經濟 的 崛起，政府 開始 全面 推動 「教育 改革」，希望 台灣 教育 的 內容 能 更 開放、更 多元化、更 有 彈性。教育 的 目的 不 再 只 是 強調 「知識」 的 灌輸，同時 也 要 重視 學生 獨立 思考 和 解決 問題 能力 的 培養。而 總結 過去 三 年 多 以來， 各 種 「教改」 的 政策 與 措施，我們 可以 萃取 出 三 個 核心 價值：「多元 開放」、「公平 正義」 及 「追求 卓越」。

「多元 開放」簡單 地 說，就 是 要 「因 材 施 教」。不要 只 用 一 把 尺 來 衡量 所有 的 學生，要 讓 擁有 不同 學習 興趣 和 特殊 才能 的 學生，也 能 有 機會 充分 發揮 所長。 因此 ，從 師資 的 培養、教科書 的 編寫、升學 管道 的 充實，乃至於 課程 綱要 的 設計 ， 都 儘量 多元 開放，讓 整個 教育 體系 能 朝 多方面 發展 。過去 的 教育 制度，每 年 也許 可以 培養 出 二 萬 個 優秀 的 學生，但 它 的 代價 很 可能 是 犧牲 了 十 萬 個 學生 接受 正常 教育 的 機會。而 未來 的 教育 制度，不但 原來 的 二 萬 個 優秀 學生 能 快樂 的 學習，另外 的 十 萬 個 學生 也 能 有 機會 學 有 一 技 之 長，或是 充分 發揮 他們 的 才能。

「公平 正義」 則 是 要 把 教育 資源 讓 更多 的 人 共享，不 因爲 城鄉 或是 貧富 的 差距，而 被 剝奪 了 接受 教育 的 機會 與 權利。過去 十 年，我們 把 大學 的 窄門 打開 了，讓 更多 的 學生 有 機會 進 大學，這 就是 公平。而 過去 的 三 年，我們 將 大學 學費 的 漲幅，大幅 縮小 爲 公立 大學百分之 三 點 O 四，私立 大學 百分 之 O 點 O 四。同時，政府 也 大幅 放寬 助學 貸款 的 條件， 並 將 貸款 的 利率 由 最高點 的 百分之 八 點 一 調降 爲 百分之 二 點 九 二 五，儘量 幫忙 減輕 讀 大學 的 負擔，這 就是 正義。

「追求 卓越」 則 有 兩 層 的 意義：一方面 是 要 提升 全民 教育 的 水準，因此 政府 正 積極 推動 國民教育 向 下 與 向 上 的 延伸，於 九十三 學年度起，首先 將 離島 和 原住民 鄉鎮 五 歲 的 幼兒 納入 國民教育 體系。同時，也 積極 規劃 「十二 年 國教」 的 工作，希望 以 五 年 的 時間，建立起 優質 且 普及 的 高中、

職 教育 環境，以 啓動「K ＋ 十二」的 國民教育 體系；另一方面，政府 也 規劃 以 五 年 五 百 億 元 的 經費，積極 投資 於 高等 教育，發展 一流 的 大學 和 頂尖 的 研究 中心，培養 具有 國際 優勢 競爭力 的 人才。

如同 天下 所有 的 父母 一樣，教育 工作 是 阿扁 最 關心、也 最 重視 的 施政 工作，但 阿扁 從來 不 隨意 干涉 教育 工作 的 推動。過去 台灣 的 教育一直 被 執政 者 當成 教化 人民、灌輸 特定 政治 教條 的 工具，今天 好不容易 讓 教育 的 工作 回歸 教育 的 本質，我們 絕對 不 可以 再 走 回頭路，一定 要 讓 政治 的 歸 政治、教育 的 歸 教育。教育 是 國家 的 百 年 大 業，而 學生 學習 的 歷程 一生 也 只有 一 次。今天 我們 推動「 教 改 」、堅持 「教 改」，是 爲了 我們 的 後代 子孫 作 準備，我們 有 信心、也 有 決心，「教 改」 一定 會 成功，也 一定 要 成功。最後，祝福 大家 身體 健康、萬事 如意。

# Appendix E: Practice Speech

President Chen's speech at a ceremony marking the 57th Merchant's Day in Taiwan

(An English translation done by the researcher is included at the end of the Chinese text)

陳水扁總統參加台灣省慶祝第五十七屆商人節大會活動致詞

今天阿扁非常高興能應邀參加台灣省慶祝第五十七屆商人節大會。個人首先要代表政府與人民，向我們所有的台灣商人們至上最高的敬意和賀忱。因爲大家是我們台灣真正在「拼經濟」的主幹。台灣的商人不論在國內或國外，那種兢兢業業、苦幹實幹、不畏艱難、勇往直前的精神，早已在國際上成爲台灣商人的標誌，也是我們台灣精神的最佳表徵。

阿扁同時也要感謝各位，過去幾年來，對台灣經濟與改革的堅定支持，讓台灣在國際不景氣的逆流中，依然能夠持續各項改革，不斷的完善台灣的投資與經營環境，爲台灣下一波的經濟發展奠定基礎。

根據最近發表的一些經濟數據與報告，我們發現，我們的努力和堅持，已經有了很好的成果；我們可以從經濟數據中，證明我們已經逐步走出國際不景氣，邁向復甦；更可以從評比結果中，瞭解國際對我們這幾年來在改善投資環境上的肯定與評價。

(English Translation)
Today I am delighted to participate in the ceremony marking the 57th Merchant's Day of the Taiwan Province. First, on behalf of the government and the people, I would like to pay the highest tribute to and congratulate all the Taiwanese business people. You are the backbone of Taiwan's economic development. Whether in Taiwan or abroad, your conscientiousness, perseverance, endurance, and courage, have become the hallmark of Taiwanese business people and also the symbol of the Taiwanese spirit.

I would also like to express my appreciation for your firm support of Taiwan's economy and reform over the past years. With your support, despite the international economic downturn, we have still been able to continue various reform measures to improve Taiwan's investment and business environment and to lay a good foundation for a new phase of economic development.

According to economic statistics and reports, our efforts and perseverance have produced fruitful results. According to these data, we are gradually coming out of the global economic recession and are well on our way to recovery and prosperity. We can also learn from the international rankings that our efforts in improving the investment environment in Taiwan has been recognized and highly valued internationally.

## Appendix F: Description of the Procedure of the Study

In this study, you will be asked to interpret four speeches, two into Chinese and two into English, each about five minutes long. The two English speeches were originally delivered by President George W. Bush of the United States but later recorded by a male native speaker of English. The two Chinese speeches were originally delivered by President Chen Shui-bian of Taiwan and later recorded by a male native speaker of Mandarin Chinese. Before each speech, I will provide you with a brief summary of the speech, including the date and occasion the speech was originally delivered and some terms that you will hear in the speech.

Following each interpretation, you will be asked to recall your thought processes during the interpretation. To familiarize you with this procedure, there will be a brief training session before the study starts. During the training session, you will interprete a two-minute Chinese speech and then recall whatever was on your mind during the interpreting. You can take the opportunity to adjust your microphone or the volume of the speech. You can also stop at any time to ask questions.

During the interpreting, please imagine you're interpreting in a real conference and there are people who depend on you to understand the speech. Also, please just concentrate on interpreting the speech and do not worry about having to recall afterwards.

There will be a break of about 10 minutes after the first two speeches and retrospections. After the four speeches and retrospections are all completed, you will be ask to fill out a set of questionnaires about your feelings toward those four performances and your interpreting backgrounds. The whole process will take you about 3 hours.

## Appendix G: Instructions for Stimulated Retrospection

The purpose of this activity is for me to learn about what you were thinking at the time you were interpreting this speech. I can hear what you said during the interpreting, but I don't know what you were thinking when you were interpreting the speech. So what I would like you to do is to tell me what was on your mind when you were interpreting.

To help you remember your thoughts during the interpreting, what we are going to do now is to listen to the recording of the source speech and the interpreting you just did. I am going to place the cassette recorder between us so you can pause the tape anytime you want to tell me something you were thinking during the interpreting task, and I can also press pause if I have any questions about what you were thinking.

There is also a script of the source speech in front of you that you can refer to at any time. You can also refer to your notes if you had taken any notes during the interpreting.

# Appendix H: Summaries of Materials

**BUSH_VOLUNTEERISM**

Topic: Volunteerism
Speaker: George W. Bush
Date of delivery: 11/30/2002

In this speech, President Bush addresses the American people from the radio on the occasion of Thanksgiving. He talks about the meaning of Thanksgiving and emphasizes the importance of volunteerism to the US. He concludes by directing people to resources for finding volunteer opportunities.

*Terms:*

| | |
|---|---|
| USA Freedom Corp | 美國自由團 |

**BUSH_EDUCATION**

Topic: Education Reform in the US
Speaker: George W. Bush
Date of delivery: 1/4/2003

In this speech, President Bush addresses the American people from the radio about the significance of the No Child Left Behind Act—an education reform policy he implemented a year ago. He describes the details of this Act and concludes by reiterating his commitment to educating American youth through this Act.

*Terms:*

| | |
|---|---|
| No Child Left Behind Act | 「帶好每個學生」法案 |
| Title One program | 「Title One」補助計畫 |
| Reading First program | 「閱讀優先」計畫 |

**CHEN_VOLUNTEERISM**

主題：志工
講者：陳水扁
日期：民國九十一年四月二十七日 (4/27/2002)

此篇演講爲陳水扁總統參加在台灣舉辦的「全球青年服務日」活動，針對年輕朋友所做的致詞，他鼓勵年輕人做志工幫助他人，並強調年輕人從事志工活動對社會所產生的貢獻。

*Terms:*

| | |
|---|---|
| 全球青年服務日 | Global Youth Service Day |
| 行政院青輔會 | The National Youth Council of the Executive Yuan |
| 志工台灣 | Volunteer Taiwan |

(Translation)

Topic: Volunteerism
Speaker: Chen Shui-bian
Date of delivery: 4/27/2002

In this speech, President Chen addresses a young audience at a ceremony marking the Global Youth Service Day in Taiwan. He encourages young people to volunteer some of their time to help others. He also highlights the contribution young people can make to the society through volunteer work.

**CHEN_VOLUNTEERISM**

主題：台灣的教育改革
講者：陳水扁
日期：民國九十三年一月十五日 (1/15/2004)

此篇演講中，陳水扁總統說明台灣實施教育改革的原因。他指出教改的三個核心價值，說明過去三年執政的成果，並重申實施教改的決心。

*Terms:*

教育改革（or教改） Education reform

(Translation)

Topic: Education Reform in Taiwan
Speaker: Chen Shui-bian
Date of delivery: 1/15/2004

In this speech, President Chen discusses the reasons for implementing education reform in Taiwan. He points out three core values behind this reform and describes what has been done over the past three years under his administration. He concludes by emphasizing again his determination to push for education reform.

**PRACTICE SPEECH**

主題：台灣經濟
講者：陳水扁
日期：民國九十二年十一月二十六日（11/26/2003）

此篇演講爲陳水扁總統參加台灣省商人節大會的致詞，他在演講中感謝台灣商人對於台灣經濟發展的貢獻與支持。

*Terms:*

| | |
|---|---|
| 商人節 | Merchant's Day |

(Translation)

Topic: Taiwan's Economy
Speaker: Chen Shui-bian
Date of delivery: 11/26/2003

This speech is from President Chen's remarks at a ceremony marking the Merchant's Day in Taiwan. He talks about Taiwanese business people and Taiwan's economic development.

## Appendix I: Interpreting Performance Questionnaire

*The following questions are about the four interpretation tasks you have performed. Please circle one number that best described your answer.*

1. Please rate your FAMILIARITY with the general content covered in each speech on a scale from 1 to 10, with 1 = not familiar and 10 = very familiar.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

2. Please rate the DIFFICULTY of each speech on a scale from 1 to 10, with 1 = easy and 10 = difficult.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

3. Please rate the SPEED at which each speech was delivered on a scale from 1 to 10, with 1 = slow and 10 = fast.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

4. Please rate your own PERFORMANCE on interpreting each speech on a scale from 1 to 10, with 1 = not satisfactory and 10 = very satisfactory.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

5. Please rate your ALERTNESS when you interpreted each speech on a scale from 1 to 10, with 1 = sluggish and 10 = very alert.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

6. Please rate your NERVOUSNESS when you interpreted each speech on a scale from 1 to 10, with 1 = not nervous and 10 = very nervous.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chen Education reform: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush Thanksgiving: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bush No Child Left Behind: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chen GYSD: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

THANK YOU FOR FILLING OUT THIS QUESTIONNARIE.

## Appendix J: Samples of Propositionalized Texts

**BUSH_VOLUNTEERISM**

| | | | |
|---|---|---|---|
| S1 | P1 | 1 | (MOD MORNING GOOD) |
| S2 | P1 | 2 | (TIME P3 THIS WEEK) |
| | P2 | 3 | (ALL ACROSS P3 AMERICA) |
| | P3 | 4 | (GATHER-WITH WE PEOPLE) |
| | P4 | 5 | (LOVE WE PEOPLE) |
| | P5 | 6 | (IN-ORDER-TO P3 P6) |
| | P6 | 7 | (GIVE WE P4 THANKS) |
| | P7 | 8 | (FOR P6 BLESSING) |
| | P8 | 9 | (IN BLESSING LIFE) |
| | P9 | 10 | (POSSESS WE LIFE) |
| S3 | P1 | 11 | (POSSESS FAMILY TRADITION) |
| | P2 | 12 | (MOD FAMILY EACH) |
| | P3 | 13 | (MOD TRADITION OWN) |
| | P4 | 14 | (YET P1 P5) |
| | P5 | 15 | (UNITE WE) |
| | P6 | 16 | (AS P5 NATION) |
| | P7 | 17 | (SET-ASIDE WE DAY) |
| | P8 | 18 | (OF DAY GRATITUDE) |
| S4 | P1 | 19 | (MOD WE GRATEFUL) |
| | P2 | 20 | (FOR P1 FREEDOM) |
| | P3 | 21 | (ENJOY WE FREEDOM) |
| | P4 | 22 | (MOD WE GRATEFUL) |
| | P5 | 23 | (FOR P4 ONES) |
| | P6 | 24 | (MOD ONES LOVED) |
| | P7 | 25 | (GIVE P6 MEANING) |
| | P8 | 26 | (TO P7 LIFE) |
| | P9 | 27 | (POSSESS WE LIFE) |
| | P10 | 28 | (MOD WE GRATEFUL) |
| | P11 | 29 | (FOR P10 GIFT) |
| | P12 | 30 | (MOD GIFT MANY) |
| | P13 | 31 | (POSSESS LAND GIFT) |
| | P14 | 32 | (MOD LAND PROSPEROUS) |

**BUSH_EDUCATION**

| | | | |
|---|---|---|---|
| S1 | P1 | 1 | (MOD MORNING GOOD) |
| S2 | P1 | 2 | (TIME P3 ONE-YEAR-AGO) |
| | P2 | 3 | (TIME P3 THIS-MONTH) |
| | P3 | 4 | (SET COUNTRY COURSE) |
| | P4 | 5 | (POSSESS WE COUNTRY) |
| | P5 | 6 | (MOD COURSE BOLD) |
| | P6 | 7 | (MOD COURSE NEW) |
| | P7 | 8 | (IN P3 EDUCATION) |
| | P8 | 9 | (MOD EDUCATION PUBLIC) |
| S3 | P1 | 10 | (WITH AMERICA ACT) |
| | P2 | 11 | (LABEL ACT NO-CHILD-LEFT-BEHIND-ACT) |
| | P3 | 12 | (BEGIN AMERICA ERA) |
| | P4 | 13 | (MOD ERA PROMISING) |
| | P5 | 14 | (IN P3 SCHOOL) |
| | P6 | 15 | (MOD SCHOOL PUBLIC) |
| | P7 | 16 | (MOD P6 OUR) |
| | P8 | 17 | (OF ERA CONTROL) |
| | P9 | 18 | (MOD CONTROL LOCAL) |
| | P10 | 19 | (OF ERA STANDARD) |
| | P11 | 20 | (MOD STANDARD HIGH) |
| | P12 | 21 | (OF ERA ACCOUNTABILITY) |
| | P13 | 22 | (PRODUCE ERA RESULT) |
| | P14 | 23 | (MOD RESULT BETTER) |
| | P15 | 24 | (FOR P14 STUDENT) |
| | P16 | 25 | (POSSESS AMERICA STUDENT) |
| S4 | P1 | 26 | (UNDER P3/4/5 LAW) |
| | P2 | 27 | (MOD LAW NEW) |
| | P3 | 28 | (MAKE PARENT CHOICE) |
| | P4 | 29 | (MAKE TEACHER CHOICE) |
| | P5 | 30 | (MAKE PRINCIPAL CHOICE) |
| | P6 | 31 | (MOD CHOICE KEY) |
| | P7 | 32 | (ABOUT P6 SPENDING) |
| | P8 | 33 | (MOD SPENDING EDUCATION) |
| | P9 | 34 | (AT P3/4/5 LOCAL-LEVEL) |
| | P10 | 35 | (KNOW PARENT CHILDREN) |

**CHEN_VOLUNTEERISM**

| | | | |
|---|---|---|---|
| S1 | P1 | 1 | （MOD 阿扁 高興） |
| | P2 | 2 | （能夠 阿扁 P3） |
| | P3 | 3 | （有 阿扁 榮幸） |
| | P4 | 4 | （來 阿扁 P5） |
| | P5 | 5 | （參加 阿扁 活動） |
| | P6 | 6 | （主辦 青輔會 活動） |
| | P7 | 7 | （OF 青輔會 行政院） |
| | P8 | 8 | （LABEL 活動 GYSD） |
| | P9 | 9 | （LABEL 活動 全球青年服務日） |
| S2 | P1 | 10 | （看到 $ 面孔） |
| | P2 | 11 | （MOD 面孔 年輕） |
| | P3 | 12 | （MOD 面孔 有朝氣） |
| | P4 | 13 | （NUMBER-OF 面孔 那麼多） |
| | P5 | 14 | （有 $ 活力） |
| | P6 | 15 | （MOD 活力 擋不住） |
| | P7 | 16 | （覺得 自己 年輕起來) |
| | P8 | 17 | （MOD 好像 P8) |
| S3 | P1 | 18 | （想 個人 P3) |
| | P2 | 19 | （MOD P1 常常） |
| | P3 | 20 | （花 人 小時 P5） |
| | P4 | 21 | （MOD 小時 1000) |
| | P5 | 22 | （行善 人） |
| | P6 | 23 | （尊重 $ 人） |
| | P7 | 24 | （MOD P6 值得) |
| S4 | P1 | 25 | （BUT S3 P2) |
| | P2 | 26 | （IF P3 P7) |
| | P3 | 27 | （花 人 小時） |
| | P4 | 28 | （MOD 人 一千個） |
| | P5 | 29 | （MOD 小時 一個） |
| | P6 | 30 | （做 人 志工） |
| | P7 | 31 | （幫助 $ 社會） |
| | P8 | 32 | （MOD P7 更深遠） |
| | P9 | 33 | （MOD P7 更廣大） |

**CHEN_EDUCATION**

| | | | |
|---|---|---|---|
| 1 | S1 | P1 | （好 $ 大家） |
| 2 | | P2 | （TIME P2 十年前） |
| 3 | | P3 | （爲了 P4/6 P8） |
| 4 | | P4 | （因應 政府 競爭） |
| 5 | | P5 | （的 全球化 競爭） |
| 6 | | P6 | （因應 政府 崛起） |
| 7 | | P7 | （的 經濟 崛起） |
| 8 | | P8 | （MOD 經濟 知識） |
| 9 | | P9 | （開始 政府 P9） |
| 10 | | P10 | （推動 政府 改革） |
| 11 | | P11 | （MOD P9 全面） |
| 12 | | P12 | （MOD 改革 教育） |
| 13 | | P13 | （希望 $ P16/17/18) |
| 14 | | P14 | （MOD 教育 內容） |
| 15 | | P15 | （MOD 教育 台灣） |
| 16 | | P16 | （MOD 內容 更開放） |
| 17 | | P17 | （MOD 內容 更多元化） |
| 18 | | P18 | （MOD 內容 更有彈性） |
| 19 | S2 | P1 | （強調 目的 P4） |
| 20 | | P2 | （的 教育 目的） |
| 21 | | P3 | （MOD P1 只是） |
| 22 | | P4 | （灌輸 $ 知識） |
| 23 | | P5 | （NEG P1） |
| 24 | | P6 | （也要 P7) |
| 25 | | P7 | （重視 $ P7) |
| 26 | | P8 | （培養 $ 能力） |
| 27 | | P9 | （MOD 能力 思考） |
| 28 | | P10 | （MOD 思考 獨立） |
| 29 | | P12 | （MOD 能力 P12) |
| 30 | | P13 | （解決 $ 問題） |
| 31 | S3 | P1 | （總結 $ P2/3） |
| 32 | | P2 | （MOD 改革 教育） |
| 33 | | P3 | （的 P2 政策） |
| 34 | | P4 | （的 P2 措施） |
| 35 | | P5 | （MOD P3/4 各種） |

# Appendix K: Guidelines for Speech Judges

You're asked to judge the following English (Chinese) data. You will be provided with both the recordings and the transcriptions of the recordings. Please pretend you are the listener of the interpreting and base your judging on the recordings, not the transcriptions.

The data are from 9 interpreters' simultaneous interpretations from Chinese to English (English to Chinese) of two five-min speeches, Chen_E and Chen_V (Bush_E, Bush_V), which make 18 five-min English (Chinese) speeches in total. Chen_E (Bush_E) is a speech made by President Chen S. B. (President Bush) on Taiwan's (U.S's) education reform. Chen_V (Bush_V) is another speech made by President Chen S. B. (President Bush) on volunteerism. You need to listen to each speech and mark on its transcription four types of errors:

- **Grammatical errors**: when you hear a grammatical error, such as a tense problem or an awkward sentence structure, underline the wrong part and write a G under it.
- **Lexical errors**: when you hear a word usage error, underline the part where the word usage doesn't sound right and write an L under it.
- **Self-corrections**: when you hear a self-correction, underline the part that sound like a self-correction and write an S under it.
- **Incomplete sentences**: when you hear an incomplete sentence, underline where it sounds like an incomplete sentence and write an I under it.

To familiarize you with the marking procedure, I will go through one speech with you as training before you work on the recordings and transcriptions independently.

There is no need to calculate anything or to provide reasons for your marking, but I may need to talk with you later if I am not clear about the reason for any of your marking.

Thank you very much for your help.

# Appendix L: Initial Categories and Codes

*Anticipation*: syntactic, semantic, background knowledge

*Audience*: who is the audience, background knowledge, acceptability of language, digesting for audience, communication effects, audience's expectation, audience's needs

*Chinese language characteristics*: null subjects, connectives, cultural usage, idioms and set phrases, implicit messages, redundancy

*Comprehension problems*: plausibility, doubt, numbers, referents, effortful, ambiguity, lack of background knowledge

*English language characteristics*: grammar, cultural usage, logical links

*Emotional responses*: frustration, compromise, critical, regret, relax, satisfaction

*EVS*: too long, too short, adjustment

*Language proficiency*: confidence, flexibility, resources

*Memory problems*: forgetting, worry about forgetting

*Monitoring:* concentration, performance, awareness of loss information, good word choice, bad word choice, allocation of efforts, evaluation of performance

*Past experience*: strategy use, growth from novice to professional, experience in other conferences

*Perception problem*: not heard, not heard clearly, not sure, overlapping

*Physical conditions*: tired, alertness

*Prior-knowledge*: helpful, lack of background knowledge, activation of background knowledge, misleading, distraction

*Source text*: speed, topic, information-density, numbers, terms, beginning, ending, register, redundancy, main messages, volume, tone, context

*Speaker*: delivery style, experience with speaker, speed, political ideology, Chinese speakers lack logic

*Speech reader*: voice quality, delivery style, speed

*Strategies*: selection, waiting, omission, guessing, note-taking, summarization, generalization, explication, image/picture, segmentation, neutralization, cultural adaptation, inference-making, change of strategies, paraphrasing, correction, elaboration

*Time*: lack of time, extra time available, time pressure, pauses

*Translation problems*: retrieval difficulty, more effortful, slips of tongues, word choices, selecting appropriate equivalents, interference from source text, cultural terms, sentence completion, structural differences, conversion of numbers, coherence, context

*Others*: preparation, personal judgment, personal weakness

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# Vita

Chia-chien Chang, the daughter of Ya-Hsiu Changwu and Te-chuan Chang, was born in Taipei, Taiwan on July 3, 1970. After graduating from the National Taipei College of Business, she entered the Department of Foreign Languages and Literatures at the National Taiwan University in 1991 and completed the degree of Bachelor of Arts in June 1994. She attended the Graduate School of Translation and Interpretation at the Monterey Institute of International Studies from 1994 to 1996, where she received the degree of Master of Arts in Chinese/English translation and interpretation in 1996. She married Chwan-ming Wang in 1997. Their daughter, Ting-yun Christine Wang, was born in December 2000.

From 1996 to 2000, Chang worked as a Chinese/English translator and interpreter in Taiwan and taught translation and interpretation courses at the National Chung Hsing University and the National Chiao Tung University, respectively. In 2000, she was awarded a scholarship for studying abroad by the Ministry of Education of Taiwan. In 2001, she entered the doctoral program in Foreign Language Education at the University of Texas at Austin, specializing in Applied Linguistics. While she was in the program, she presented several papers on English teaching and Chinese/English simultaneous interpreting at regional and national conferences. In 2004, she was awarded the Graduate Student Continuing Fellowship.

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